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THESIS

A NAVY OFFICER ASSIGNMENT MODEL

by

Thomas Gordon Russell

March 1982

Thesis Advisor: Paul R. Milch

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A Navy Officer Assignment Model

by

Thomas Gordon Russell
Lieutenant Commander, United States Navy
B.A., Grinnell College, 1968

Submitted in partial fulfillment of the
requirements for the degree of

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from the

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I. INTRODUCTION

This thesis will describe a first step in incorporating automatic data processing (ADP) into the procedures used in the assignment of U. S. Naval Officers by the Naval Military Personnel Command (NMPC). It is designed to replace the routine administrative tasks required of both assignment and placement officers without reducing their role in making the essential decisions in the assignment process. As will be described in Chapter Three, the assignment of officers is almost entirely a manual process at the present time. Hand-written or typed memos are circulated among the various offices informing the assignment and placement officers of the status of each officer who is to be reassigned. The search for an appropriate billet for each officer who is a candidate for reassignment is a manual effort. The bookkeeping involved in keeping track of billets which will soon require filling and officers whose tour is near completion are both done manually with the aid of a mechanical device known as a slate.

The motivation for this model came from the author's experience as an assignment officer from 1977 to 1980. During that period an often discussed topic was the feasibility of automation of a portion of the assignment process. As early as May, 1973, a study group commissioned by the Assistant Chief of Naval Personnel for Management Information looked at

strategic plans for the decade 1975-1985 and discussed, albeit in general terms, officer detailing procedures in terms of an on-line information/retrieval/scratch-pad system [Ref. 1]. Although the enlisted assignment process makes use of such a system, the officer distribution process does not. Some work [Ref. 2] has been done in the area of using linear programming to arrive at a least cost solution of the problem of assigning a group of officers, but little has been done towards making assignments individually. During the period when this author worked at NMPC, several consultants interviewed Assignment and Placement Officers with the intent to conduct feasibility studies for an automated officer distribution system. However a working model to aid the detailers and placement officers in making assignments has not yet appeared. This thesis is an initial step in providing such a model.

The scope of this model was limited to the assignment process only. There was no effort made to interface with any particular orderwriting system or any other aspect of the mission of NMPC. A majority of both the assignemnt and placement officers' time is taken up with tasks which are done by the proposed computer model. Use of this model could result in considerable savings of time which could free the detailer to provide better service to his constituency and permit the placement officer to offer more service to his commands.

As will be apparent from the descriptions and examples, this proposal will not tell the detailer and placement officer who is the "best" officer for any particular billet. It will permit him to search the list of available billets more efficiently, keying on certain criteria, to narrow the choices from several hundred to just a few. The program for example may display all of the available billets for a Surface Warfare Officer (1110) who is a lieutentant and has a particular subspecialty, but it remains in the detailer's pervue to select one of these billets and propose his officer to fill it. One of the advantages of such a system is that all of the possible billets which meet the prerequisite criteria are identified by the computer. If it were done by hand there is a great potential to miss a possible assignment when searching through several hundred billets. Also, a match is done occasionally entirely based on the detailer's memory of a "best billet" of those which are available to the exclusion of all other possibilities.

Chapter Two of this thesis provides a description of the people involved and their responsibilites in an assignment. It describes the typical background of the three principal officers involved in any assignment: the detailer, the sea or shore coordinator, and the placement officer. Additionally, it outlines the tasks for which each of these individuals is responsible during the assignment of a Naval Officer.

Chapter Three goes into detail in describing the current process. Its purpose is to describe the extant process and point out the mount of manual intervention required by the principals. The chapter provides the basis for comparison of the current process with that of the proposed system outlined in the later chapters. The chapter is important since the proposed system does not attempt to change the steps of the assignment process as it is done today.

Chapters Four and Five give an overview of the ADP enhanced assignment process and a detailed description of how it operates. The fourth chapter describes the functions which are improved as well as the paper records and files which it replaces. In the fifth chapter the details of the proposed system are covered. Each of the steps in the process of an assignment are described and figures which show the video screens that the assignment and placement officers see during each step are also provided. The descriptions are not particularly lengthy since the figures themselves are self explanatory.

The final chapter provides some conculsions and recommendations for future work. Since the scope of this work was by necessity limited, there remain several areas for improvement and expansion. These are outlined in this chapter.

There are three appendicies in this thesis. The first describes the technical specifications involved in the operation of the model. A description of the language in which the programs are written, the equipment for which the

model was designed and the data bases which it uses are found in the first appendix. There are also brief descriptions of each of the principal programs upon which the ADP enhanced assignment process is based, as well as the global variables which are used to store the data.

The second appendix contains the step by step procedures used to operate the model at the Naval Postgraduate School's W. R. Church Computer Center. It also explains the various CMS programs which were used to do this. The last appendix contains the APL programs which comprise the model.

II. PREREQUISITES OF AN ASSIGNMENT

A. PRINCIPLES OF AN ASSIGNMENT

There are three basic precepts on which the duty assignment of a Naval Officer is ideally based. They are: the desires of the individual, his qualifications, and the needs of the Naval Service.

The desires of the individual must be considered. Making assignments without at least an input from the officer involved could have an adverse impact on both the morale and job satification of the officer and ultimately effect his retention.

Certainly in making any assignment the detailer must consider the qualifications of the officer. These consist of both technical qualifications such as pilot, submarine qualification, steam engineering qualification or technical subspecialities, and performance qualifications. Technical qualifications are relatively easy to ascertain by checking designators, Additionial Qualification Designations, and education records. There is normally very little debate over whether or not an officer is technically qualified for a billet. Performance evaluation on the other hand is not so easily quantified. While it is not difficult to differentiate the "truly outstanding Naval Officer" from the opposite end of the spectrum, it can be very difficult to sort out the people in the middle. What one Placement Officer may accept for a particular billet,

another may not find suitable. The weakness in this area can be attributed to the difficulty in evaluating thousands of peers officers on the same scale when the evaluations are done by hundreds of different commanding officers.

The leg of the duty assignment triad which has the most impact is unquestionably the "Needs of the Naval Service." Put very simply, if there is no billet at the location where an officer wants to be assigned, he will not be assigned there. The opposite of this is also true: if there is a requirement in some location that no one has requested, an officer will be assigned even if that individual has no desire to serve there. This last aspect of the detailer's job can be the most difficult, since he must both make the decision of who is to go and then notify that officer that, for instance, he has been assigned to a one year unaccompanied tour on a remote island in the middle of the Indian Ocean.

Ideally these three aspects have equal weight. Some experienced officers claim that there is always some qualified person who wants to be assigned to almost any given billet, and that if the detailer is having problems finding someone to fill a billet it is because the detailer is not looking hard enough or he has not advertized the billet sufficiently. This philosopy has resulted in the publishing of information about hard to fill requirements in various Navy Military Personnel Command (NMPC) publications such as The Perspective and The Junior Officer Billet Summary.

B. THE ADVERSARY SYSTEM

Most of the Officer Distribution Section of the Naval Military Personnel Command is organized as a friendly adversary system. The assignment officers, or detailers, representing the officers in the Navy are opposed by the placement officers representing the commands. Through their interactions most assignments are made. Some of the smaller Restricted Line and Staff Corps detailers are also placement officers, but a majority of the officers in NMPC are either detailers or placement officers. This is unique among the personnel organizations of the Armed Services. The other services have a single person who has both people and job responsibilites.

C. THE PLACEMENT BRANCH

The placement officer is an officer who represents a number of commands usually with a common denominator: for instance he may have all the East Coast destroyers and cruisers, all the training command staffs, or all the commands in the Washington, D.C. area. The placement officer is the representative of the Commanding Officer of each of the commands under his cognizance. If a Commanding Officer wants a new officer enroute to his command to be trained in a certain way, for example as a communicator, he will tell his placement officer and the placement officer will write the new officer's orders to include communication training.

Most placement officers have about eight to fifteen years of experience in various assignments in the Navy prior to being assigned. They range in rank from lieutenant through captain. If the placement branch is large, for instance all Surface Ships in the Navy, there is frequently a senior commander or junior captain as Branch Head who may-but usually does not-have any direct placement responsibilities. In the case of the Surface Ship Placement Branch example, that Branch Head has six lieutenant commanders working for him as placement officers. In addition to heiping to settle disputes between detailers and placement officers, the branch head helps to prevent intimidation of the more junior placement officers by the commanding officers of the ships they represent.

Most placement officers are not manpower/personnel sub-specialists and frequently this is their first tour in the personnel business. Their professional experience however has included whenever possible a tour in one of the activities which they represent. This is intended to ensure some empathy with the problems of these commands.

Regardless of their background, the charter of the placement branch is clear: they are responsible to the commanding officers of the units they represent and are charged with getting the best officers for their billets.

D. THE ASSIGNMENT BRANCH

Within the assignment branch, there are frequently three levels of responsibility: the detailer, the coordinator, and the branch head. The detailer is an officer who is equal or slightly senior to the officers he represents. He is normally of the same warfare speciality if not the same designator as his constituency. He is usually not a manpower/personnel subspecialist, but may or may not have worked in the Bureau of Naval Personnel (BUPERS) or NMPC before. The detailer is the point of contact for the officers in the fleet and owes his allegiance to the people he details.

The detailer maintains records on each officer he represents. This may be as few as 500 or over 2500 people. The records consist of a series of five by eight cards on one side of which are recorded notations of all orders issued to the officer, and on the other side a handwritten notation of all telephone conversations and correspondence exchanges (Figures 1 and 2). Additionally he reviews and files the latest edition of the officer's Duty Preference Card and A copy of his Officer Data Card. These last two items reflect the officer's input to the assignment process and a record of his technical qualifications.

In larger offices like both the Surface and Aviation Junior Officer Assignment Branches, there are frequently two officers assigned as coordinators, one for sea and one for shore. The coordinators are normally relatively senior within the branch and have previous experience in detailing. They maintain the

NAME	SSN	SOURCE	YR GRP	FILE NO.	DESIG.	DATE OF BIRTH
EDUCATION				PREVIOUS RATE		SUBSPECIALTY

DATE	PERS ORDERING	ORDERS VIA - DETACH - DELAY - GREEX - EDA - PRD

TOUR	REMARKS	DATE/ SEL	GRADE	DATE OF RANK

OFFICER DISTRIBUTION PILOT CARD NAVPERS 1301/45 (Rev 9-76) ADA/ RAD

Figure 1. Pilot Card Side 1

APPLIED: ☐ DD SCOL ☐ SS SCOL ☐ NPS ☐ TPS ☐ NAO ☐ OTHER ACCEPTED ☐ YES ☐ NO

PG CRS	SELECTED	INITIAL SERV. OBLIG:	COMMAND CLEARED	DATE
		ADDITIONAL OBILG: REASON-NEW DATE		

list of the available ("posted") billets from each placement officer which their branch is responsible to fill. As will be explained in Chapter III, the placement officers provide each assignment branch with a list of the billets which they anticipate will require filling in the next twelve to eighteen months. It is these lists that the coordinators maintain, and from which assignments come.

The sea and shore coordinators work with the detailers to find a posted billet against which to propose each available officer and for which he is likely to be accepted by the cognizant placement officer. Although the coordinators are assignment officers, they have an obligation to the placement officers to fill all their billets, not just the good ones.

The assignment officer branch head is usually a commander or captain who oversees the entire operation, and may or may not be an actual detailer. He performs review functions in the case of sensitive assignments such as the initial assignment of women to sea duty billets or when a review is requested by a constituant officer or that officer's commanding officer. Finally, if the detailer and placement officer are unable to agree on an assignment, the respective branch heads usually get involved.

The charter of the Assignment Branch is just as clear as that of Placement: to get the best possible billet for the officers they represent.

III. THE PRESENT ASSIGNMENT PROCESS

This chapter will trace the current assignment process as the action switches back and forth between the placement officer and the detailer. The scenario starts with the placement officer "posting" or advertizing the future availability of a billet with a specific detailing office, and the officer being "made available" for transfer by the same or some other placement officer. It ends with the detailer drafting the orders for the officer.

A. BILLET POSTINGS

Placement officers normally review the billets of their commands for those billets in which the officers filling them are twelve to eighteen months away from their Projected Rotation Date (PRD). The placement officer notes the billet and posts it with one of the several detailing offices. The criteria for which detailing office the posting is to go is primarily based on the designator and rank required in the billet. If for example the job requires an 1110 lieutenant, the posting will go to the Surface Junior Officer Assignment Branch; it may go the Aviation Lieutenant Commander Branch if the billet requires a 1320 LCDR. Billets which have 1000 (requiring any line or restricted line officer) or 1050 (requiring any warfare specialist) designators are more difficult to distribute among the detailing offices,

especially in times of restricted manning levels. Keeping in mind that among the 1000 and 1050 billets there are some which are highly desirable and others that are more difficult to fill, questions arise such as: Should communities which cannot fill all of their own rank and designator specific billets be allocated any 1000 or 1050 billets? How do you ensure that a Priority 1 1000 billet is filled ahead of a Priority 4 designator specific billet.

The algorthm by which this is accomplished is a matter of policy and has changed periodically. In the past placement officers have been permitted to post their 1000 and 1050 billets with as many of the detailing offices as they desire (multiple postings) and the billet was filled on a first-come-first-served basis. Desirable billets were quickly filled and less desirable ones were filled much more slowly, since no one detailing office was responsible to fill them. Occasionally the posting has been made only with the office which details the incumbent, with the belief that that group of detailers will provide a relief to free their officer for reassignment (hostage). A hostage situation might develop for example over assignment to one of the Army run Armed Forces Entrance and Examining Stations in a non-Navy area such as Little Rock, Arkansas. There are relatively few people who might volunteer for such a post because of its isolation from the Navy and its strong influence from the Army. In such a case, the PRD of the incumbent officer

might pass without the detailers finding a relief, and the placement officer might be unwilling to release the officer and gap the billet for an undetermined amount of time. The incumbent has therefore become a hostage until a relief is identified. This is usually effective but not necessarily timely since it is done as a last resort and therefore the posting is frequently late.

More recently a "Billet Fill Decision" has been made by a third party, an officer whose primary responsibility is to oversee this program, according to the previous month's 1000 and 1050 billet population ratios when compared to an "ideal" ratio. The posting was then made with the detailing office specified in the billet fill decision.

One of the computer products available to the placement officer is a listing of the billets in their commands sorted on the PRD of the incumbent officer. This is an aid to him to ensure he has not missed posting any of his billets.

As the placement officer posts various billets, he keeps a record of these billets and the office to which he has sent them. This prevents duplicity of posting and gives him a reference of both what he has done and what billets are not being filled promptly.

B. THE SLATES

Before progressing very far into this description it is important to stress the degree of manual intervention this

detailing system requires. The primary tools of both the placement officer and the detailer are their "slates." The slates are metalic holders about eight and one-half inches wide and vary from about twelve to twenty inches high. The slates are normally mounted vertically and hold the "strips" which are eight and one-fourth inches by five-sixteenths inch strips of cardboard. Each strip contains the identification and critical information used in the assignment process. There is one strip in the placement officer's slates for each billet and one strip in the detailer's slates for each officer. Each placement officer and detailer will have several slates to hold all the strips for which he is responsible.

Figure 3 shows the sea coordinator's slates. The coordinators usually organize their slates by placement officer and chronologically according to the date the placement officer has specified as the month in which the new officer is to arrive, within each placement officer's section. They also maintain a separate section of billets which have been proposed but for which orders have not yet been issued. This section is partitioned by the detailer who made the proposal and keeps the billet from being proposed a second time while the first proposal is active.

Detailers, on the other hand, tend to have the principal organization of their slates based on the PRD of their constituent officers. For example, all the January PRD's on

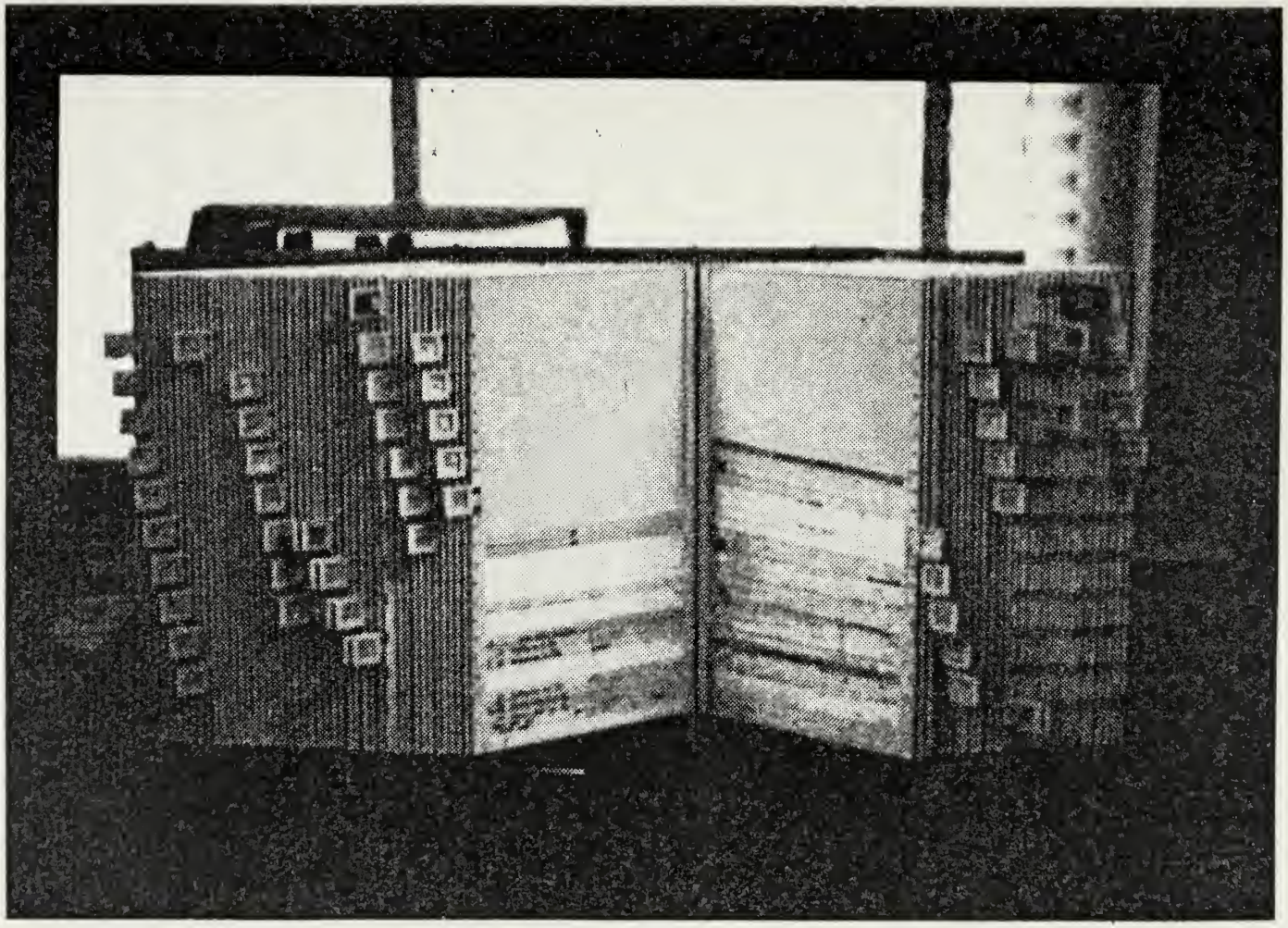


Figure 3. The Sea Coordinator's Slates

one slate, all the February PRD's on another, and so on. Figure 4 shows a detailer's slates open to March. As an officer is made available for transfer, his strip is moved to the "AVAILABLE" section of the slates which is organized by the month of availability. When an officer has been proposed to a placement officer against a certain billet, the strip is moved to the "PROPOSED" section. The officer's strip is moved to the "NOMINATED" section when he has been accepted for a billet and the orders have been drafted. When the orders are released a new strip is prepared with his new command and billet information and the officer rejoins the chronological section according to his new PRD.

One of the computer products available to both the detailer and placement officer is a new printing of strips for all their people or activities. These are normally not requested more frequently than every six months since many of the old strips carry annotations which may still be useful and invariably in the accounting task of replacing the strips there will be some new strips and some old strips which do not match and must be reconciled. There are two principal reasons for these disparities. First, the detailer or placement officer may simply have made some errors in the maintenance of his slate record since the last new strips were printed. Secondly, there is a lag between the issuance of a set of orders and the recording in the computer of the officer at his new activity. The computer maintains a

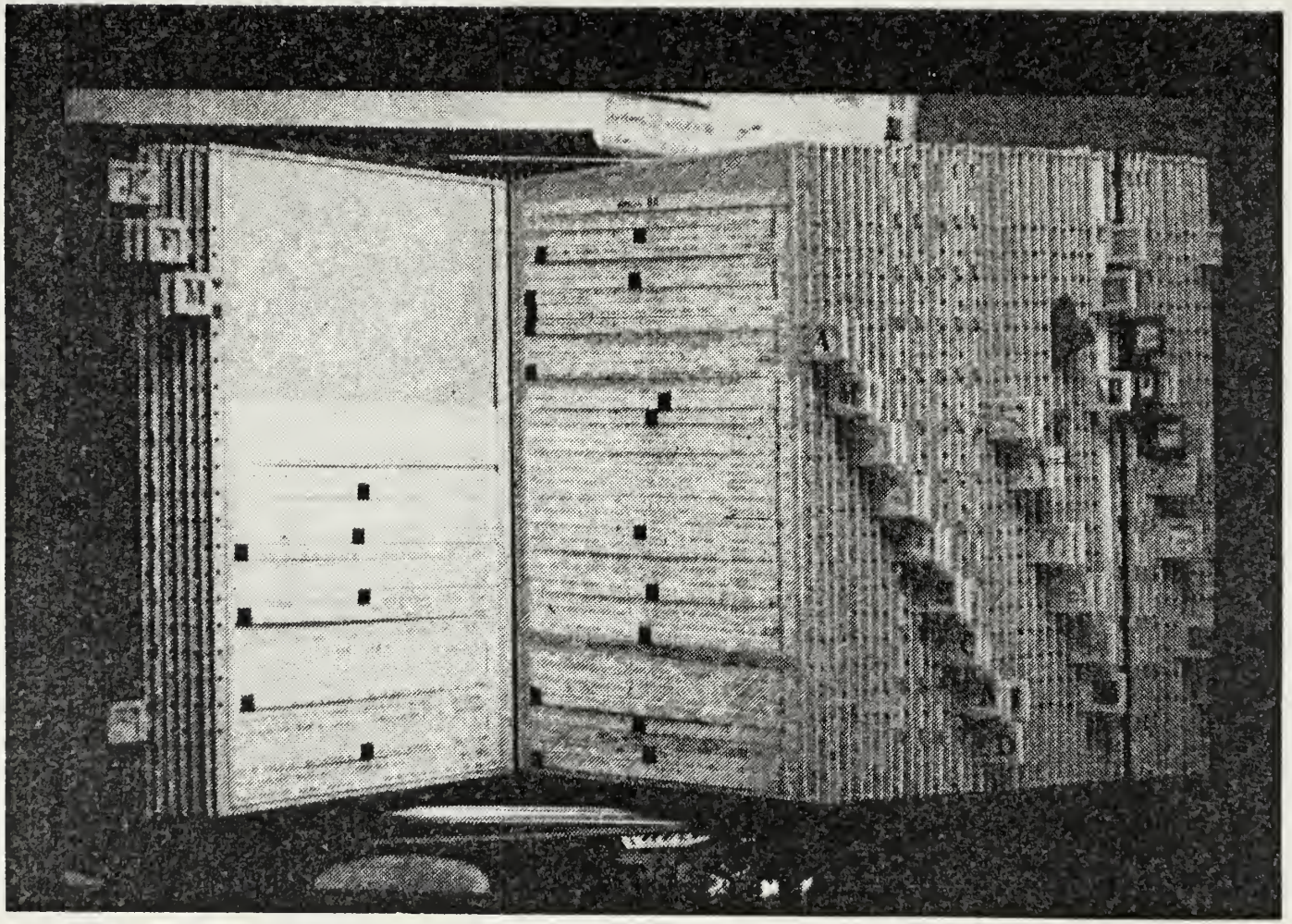


Figure 4. A Detailer's Slates

"pending record" which is generated upon issuance of the orders, but the officer is shown at his old command until the new command, or some intermediate activity, reports his arrival. Until his arrival at the gaining command, the computer printed strip may therefore show him at the old activity or some activity responsible for enroute training. The slates of the detailers and the placement officers have new strips showing the new command as soon as the orders are released. This can be six or eight months before the officer actually executes his orders. In this case a check of the pilot cards would reveal that the orders have not yet been executed.

C. OFFICER AVAILABILITIES

A placement officer will make an officer serving in one of his commands available for reassignment for any of a number of reasons. The most frequent reason is that by virtue of some other detailing actions, a relief has been identified for the officer in question. Alternatively, the officer may be made available because he is attending a course of study, like Postgraduate School, with a specific graduation date. It is also possible that either the billet in which the officer is serving is abolished or his command is to be decommissioned or disestablished. Yet another reason why an officer might be made available is that the command has communicated with its Placement Officer and has agreed to release the officer without a relief.

In order to communicate the availability information to the detailer, the placement officer completes an Availability Notice (Figure 5) specifying the detailer to whom it goes and the month in which the officer is to be transfered. Once it has been completed it is placed into the interoffice mail for delivery to the appropriate detailer. Without this slip the detailer is not empowered to look for a new billet for the officer.

NOTE: SUBMIT IN DUPLICATE. NO CARBON PAPER NECESSARY

TO: NMPC-	FROM: NMPC-			DATE:	
NAME (LAST, FIRST, MIDDLE)		SSN	RANK	CLASS	FILE NO./DESIG
DATE AVAILABLE	PRESENT SHIP OR STATION				
NATURE OF PRESENT DUTIES					
REASON FOR AVAILABILITY					
DUTY RECOMMENDED FOR (LIST IN ORDER OF PRIORITY)					
INFO:					
RELIEF IS:	EDA:				
LOCD:	MADE AVAILABLE BY:				
HPO:	SIGNATURE OF RELEASING OFFICER				
LPDS (FOR USE WHEN ORDERING FROM TEM FURASFERS	ORDERED TO:				
	NMPC- DATE:				

AVAILABILITY NOTICE NAVPERS 1301/44 (REV. 2-79)

Figure 5. The Availability Notice

The detailers normally consider an available officer for processing if he is within six to ten months or less of detachment. Officers made available in excess of this are

usually kept in an "available" status without action. The principal reason for this is to prevent the system from being overwhelmed. The bottleneck is typically not in the assignment system, but rather occurs in the order preparation and writing phase.

D. DETAILER ACTIONS TO FORMULATE A PROPOSAL

There are three principal sources of information concerning an officer used in the assignment process: the Officer Preference Card, the Report of Officer Fitness, and the Officer Data Card.

The preference card is the tool by which the individual makes his desires known. One side (Figure 6) is almost

OFFICER PREFERENCE AND PERSONAL INFORMATION CARD
NAVPERS 1301/1 (REV. 4-77) S/N 0106-LF-01-3-0106 (FRONT)

Submit 1 copy annually on 1 Dec and when significant changes occur. See BUPERSMAN 4841.1920100. Can be submitted typed or legibly printed. Not to be submitted via chain of command.

REPORT BUPERS 1301.16

1 DUTIES DURING PRECEDING 24 MONTHS, INCLUDING SIGNIFICANT ASSIGNMENTS *(Present Duty First)*

FROM (Mo., Yr.)	TO (Mo., Yr.)	ACTIVITY	PERMANENT HOME PORT	DEPLOYMENTS			DUTIES
				AREA	FROM (Date)	TO (Date)	

2 DEPENDENT INFORMATION

RESIDENCE	NAME	RELATIONSHIP	DATE/PLACE OF BIRTH	CITIZENSHIP	SCHOOL GRADE	SPECIAL CONSIDERATION

3 MARITAL STATUS ☐ MARRIED ☐ SINGLE ☐ DIVORCED ☐ SEPARATED

4 ANY ANTICIPATED CHANGE IN MARITAL/DEPENDENCY STATUS WITHIN 6 MOS? *(If yes, explain in REMARKS)* ☐ YES ☐ NO

5 DATE DEPENDENTS ARRIVED OVERSEAS

6 AUTOVON OFFICE PHONE

7 DATE REPORTED PRESENT DUTY

10 CURRENT RESIDENCE AND TELEPHONE NO *(Include area code)* (Check one) ☐ OWN ☐ RENT ☐ PUB QTRS

11 HOME OF RECORD *(City and State)*

8 PRD

9 RETIREMENT/RESIGNATION DATE

12 DATE ADA EXPIRES

13 PLACE OF BIRTH *(City, State)*

14 IF TRANSOCEANIC TRAVEL IS INVOLVED IN NEXT MOVE WILL AUTO BE SHIPPED? ☐ YES ☐ NO

15 NAME *(Last, First, Middle Initial)*

16 GRADE

17 SSN

18 DESIG

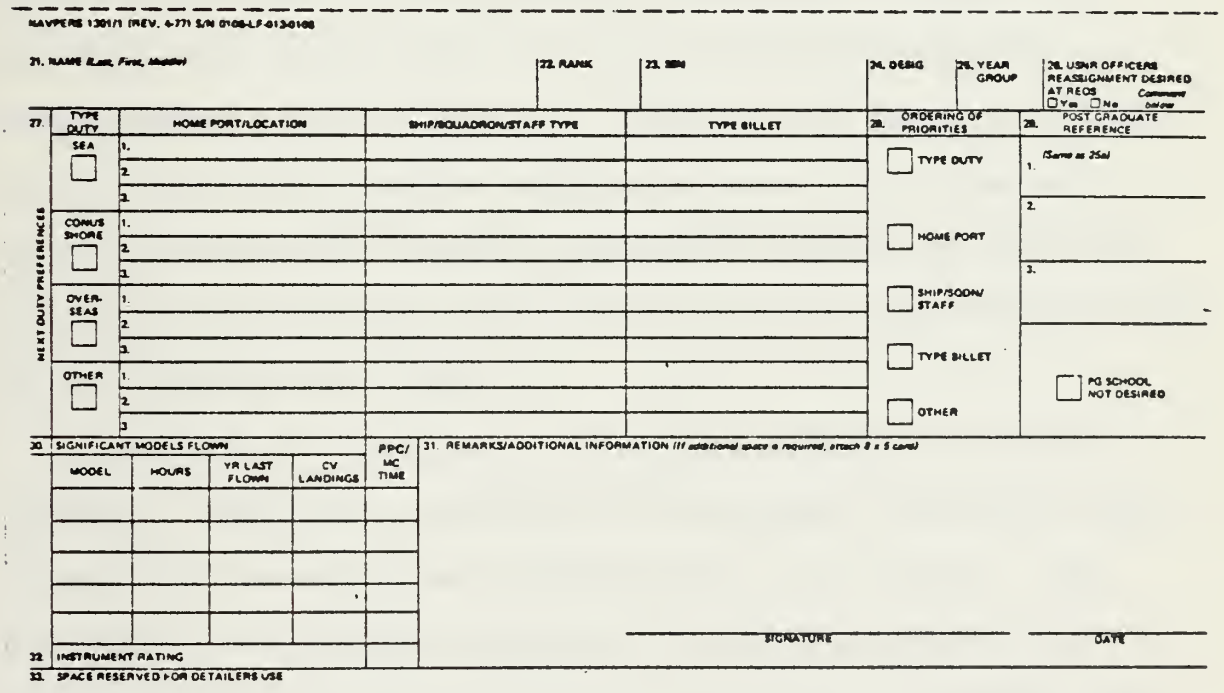
19 YEAR GROUP

20 DATE CARD SUBMITTED *(Month)*

PRIVACY ACT STATEMENT Authority to request this information is derived from 5 United States Code 301, Departmental Regulations. Purpose of the form is to provide a means for an officer to communicate his desires for future duty assignments, postgraduate education, and to make the Assignment Officer of any personal data which might affect future assignment. The Assignment Officer uses this information to assist him in making duty assignments. While completion of the form and blocks thereon is voluntary, the officer is encouraged to complete and submit this form as it is the primary means of communicating important information to the Assignment Officer.

Figure 6. The Officer Preference Card, Background Data

exclusively background data, while the other side (Figure 7) has a matrix which permits the officer to give three choices of sea, shore, overseas or other (special) duty and for each of these specify a location, billet and command. The card is read by first noting the priority among the types of duty, for example sea duty; next the priority among location, billet and command is considered. If the secondary priority order is billet, command, and location the detailer first looks for a sea duty billet of the types preferred. In the next step he makes use of the commands requested to reduce the number of possible assignments. The final step is to reduce the possibilities by looking for activities in the


NAVPERS 1301/1 (REV. 6-77) S/N 0106-LF-013-0106

21. NAME (Last, First, Middle) | 22. RANK | 23. SSN | 24. DESIG | 25. YEAR GROUP | 26. USNR OFFICERS REASSIGNMENT DESIRED AT REOS ☐ Yes ☐ No (Comment below)

27. NEXT DUTY PREFERENCES

TYPE DUTY	HOME PORT/LOCATION	SHIP/SQUADRON/STAFF TYPE	TYPE BILLET
SEA ☐	1.		
	2.		
	3.		
CONUS SHORE ☐	1.		
	2.		
	3.		
OVER-SEAS ☐	1.		
	2.		
	3.		
OTHER ☐	1.		
	2.		
	3.		

28. ORDERING OF PRIORITIES
☐ TYPE DUTY
☐ HOME PORT
☐ SHIP/SQDN/STAFF
☐ TYPE BILLET
☐ OTHER

29. POST GRADUATE REFERENCE
1. (Same as 25a)
2.
3.
☐ PG SCHOOL NOT DESIRED

30. SIGNIFICANT MODELS FLOWN

MODEL	HOURS	YR LAST FLOWN	CV LANDINGS	PPC/ MC TIME

31. REMARKS/ADDITIONAL INFORMATION (If additional space is required, attach 8 x 5 card)

SIGNATURE | DATE

32. INSTRUMENT RATING

33. SPACE RESERVED FOR DETAILERS USE

Figure 7. The Officer Preference Card, Choice Matrix

locations the officer has indicated. Using performance and qualification criteria the detailer will reduce this list to one billet against which to propose the officer. There is a narrative section available and if the form does not suit his desires the officer is encouraged to attach another card or letter. Preference cards are supposed to be resubmitted each year, although the old one is not discarded until it is replaced. There is a great potential for the use of optimization techniques in fulfilling the desires of the preference card, but there is also a significant amount of resistance. There is a concern among many that such automation will result in the loss of the non-quantifiables of the narrative. Upon receipt and prior to starting the assignment process the detailer will revise the officer's preference card for completeness (does it have all the data the detailer thinks he may need?) and for the appropriateness of his requests (has he essentially wasted a choice by requesting something that by virtue of his qualifications, seniority or NMPC policy is not possible for him?).

Similarly the detailer reviews the officer's fitness reports. These are maintained on multipage microfiche cards containing several other records about the officer. The detailer is initially looking for the completeness of the record: i.e., he makes sure that there are no periods skipped and the latest report is present. If there are discrepancies the detailer has two options. He can try to find a

copy of the missing report within NMPC (perhaps the microfiche has not been updated), or he can also attempt to contact the officer and determine if he has a copy of the missing report.

Finally the detailer looks at the quality of the fitness report. How does this officer rank with his peers? Does the report indicate any weak or strong points? What does the narrative section say, or perhaps more importantly, not say about the officer? There are a number of points which the detailer checks depending on the seniority, qualifications or requests the officer has made. These and other intangibles make it very difficult to imagine an automation of the reading of fitness reports in their present state to the point of being compatible with a fully automated assignment system.

The Officer Data Card (Figure 8) is a computer generated card that gives basic information, historical assignment data, educational background and technical qualifications of the officer. When the detailer reviews this card he is again looking for completeness, especially with respect to technical qualifications reflected in AQSs, subspeciality codes and the number of dependents.

These are the preliminaries; the detailer, armed with these three documents, is now ready to proceed with the actual assignment.

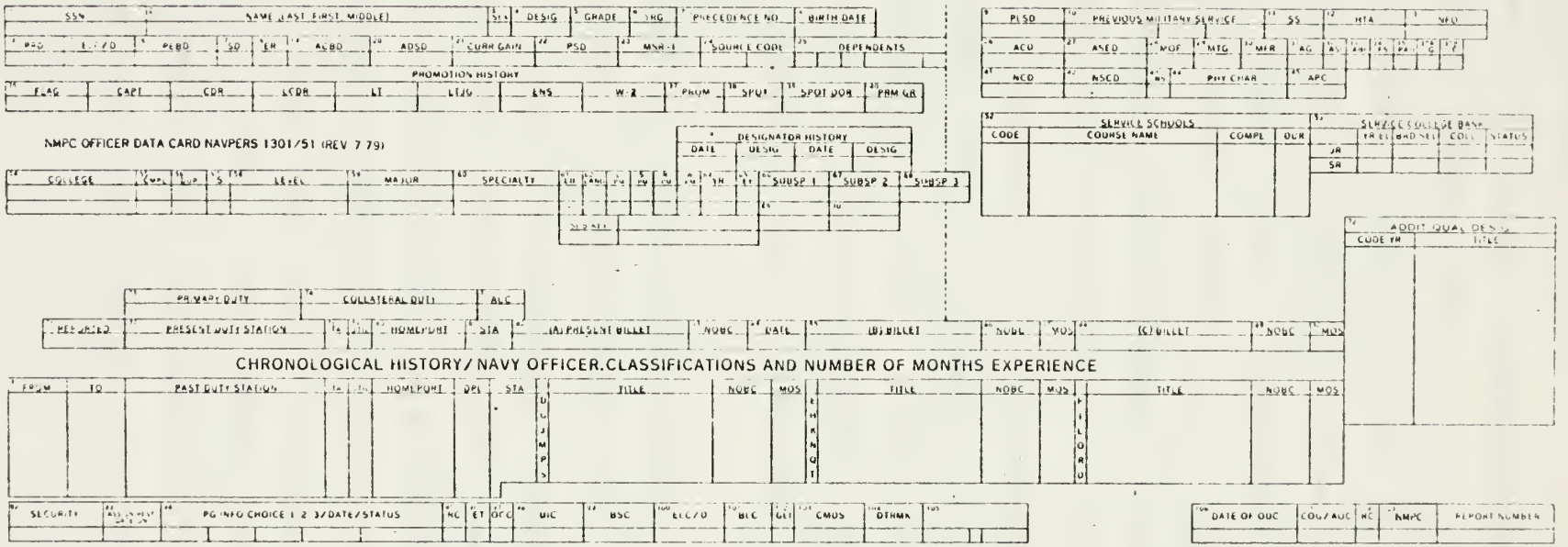
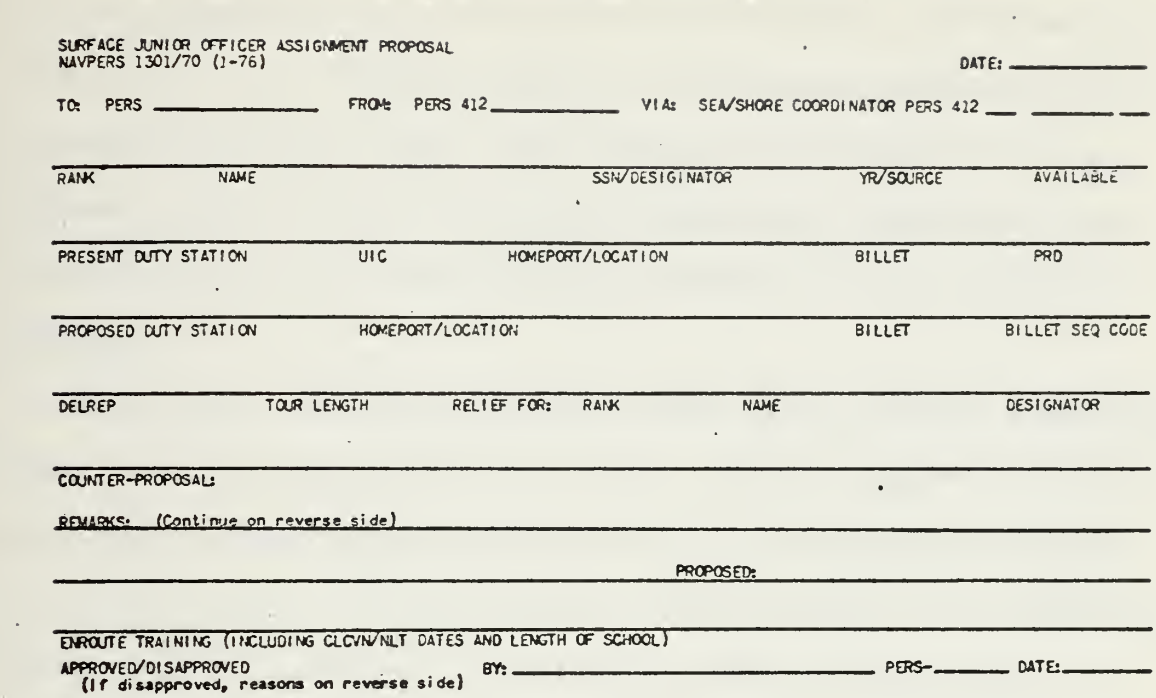


Figure 8. The Officer Data Card

E. FORMULATING A PROPOSAL

Having reviewed the officer's technical qualifications and knowing what his fitness reports say about his quality, the detailer once again reviews the officer's preference card. He is interested in assessing whether the requests are still within reason; if not the detailer will modify them. For example if the officer's fitness reports show him to be consistantly a weak performer but his preference card requests only billets for which top quality officers are accepted, the assignment officer will frequently extrapolate the preference card to more moderate billets and work toward placing him in one of them. If there is time and the officer is available, at least by telephone, he will consult with the subject officer, if not he will make the modifications unilaterally.

Given the preference card, albeit perhaps modified slightly, the ODC and the fitness report, the detailer works with either the sea or shore coordinator to select an appropriate assignment. The detailer formalizes the link between his officer and the selected billet by completing the officer proposal form (Figure 9) which is forwarded in a package with the ODC and the fitness report microfiche either via the interoffice mail or by hand to the placement officer who represents the activity where the proposed billet is located. The coordinator annotates the posting strip for this billet so that no other officer will be proposed against it until



SURFACE JUNIOR OFFICER ASSIGNMENT PROPOSAL
NAVPERS 1301/70 (1-76)

DATE: _____

TO: PERS _____ FROM: PERS 412 _____ VIA: SEA/SHORE COORDINATOR PERS 412 ___ _____ ___

RANK NAME SSN/DESIGINATOR YR/SOURCE AVAILABLE

PRESENT DUTY STATION UIC HOMEPORT/LOCATION BILLET PRD

PROPOSED DUTY STATION HOMEPORT/LOCATION BILLET BILLET SEQ CODE

DELREP TOUR LENGTH RELIEF FOR: RANK NAME DESIGNATOR

COUNTER-PROPOSAL:

REMARKS: (Continue on reverse side)

PROPOSED:

ENROUTE TRAINING (INCLUDING CLCVN/NLT DATES AND LENGTH OF SCHOOL)

APPROVED/DISAPPROVED BY: _____ PERS-_____ DATE:_____
(If disapproved, reasons on reverse side)

Figure 9. The Officer Proposal Form

the proposal which has just been made is resolved. One of the principles of the system is that except for very high visibility jobs, such as three star and higher flag officers' personal staffs, only one officer is considered for any single billet at a time. Similarly, an officer is not normally given a "shopping list" of billets from which to choose.

F. PLACEMENT OFFICER ACTIONS UPON RECEIPT OF A PROPOSAL PACKAGE

When the placement officer receives a proposal package he will review it trying to determine if he thinks this is

the best candidate he can expect for the job. His acceptance will be based on such things as the officer's performance as reflected in his fitness reports, his qualifications such as subspecialties and AQDs, the special requirements of the command, and the ability of the candidate to meet both the prerequisites, and the time requirements of the training package.

The first two considerations have been already discussed from the detailer's point of view. The placement officer as the one who must answer to each of his commanding officers for any quality or qualification shortcomings of a candidate has a vested interest in reviewing these aspects too.

Special requirements are ones particular to a single command. For example perhaps a command has a weak department head; to compensate for this they may request that the placement officer assign an especially strong division officer to support him.

Most billets, especially shipboard billets, require extensive enroute training. Two of the placement officer's jobs are to ensure that the candidates have all the prerequisites this training requires and can get to the schools on time. If this is not the case an otherwise qualified officer may have to be rejected.

For most billets the placement officer is authorized to make a unilateral decision as to whether or not an officer is acceptable. About twenty percent of the jobs however are

nominative in nature, that is, they require approval by some external activity, usually the gaining command, before the placement officer can accept the candidate. Nominative billets include most captain billets, most Washington D.C. billets, flag officer personal staffs, and NROTC billets. In the case of the NROTC billets, the approval entails a review of the candidate's academic credentials by the institution. Most other cases require that the placement officer send to the gaining command a notice of his intent to assign the candidate, some adjective description of his performance, but not his fitness reports, and a copy or interpretation of his ODC. This exchange of correspondence can and often does take more than a month to complete.

Once a decision has been reached, the placement officer returns the proposal package to the detailer via the coordinator. If the proposal has been accepted, the placement officer will frequently provide a list of the necessary enroute training for the new billet and the approximate class convening dates so the detailer can inform the officer. The placement officer will have his typist prepare a new strip showing the new officer and his qualifications and post it on his slate under the incumbent. The incumbent will remain on the slate until he is detached. If the officer has not been accepted, usually the placement officer will indicate his reasons and may counterpropose one of his other posted billets for which the officer would be acceptable.

G. SEA OR SHORE COORDINATOR ACTION UPON RETURN OF THE PROPOSAL PACKAGE

If the officer has been accepted, the coordinator will return the proposal package to the detailer. Before returning a rejected package to the detailer the coordinator will return his billet strip to the active section of his slates so that others can be proposed against it. If there was a counter-proposal the coordinator consults with the detailer and determines if he is agreeable to it. If so a pro forma proposal may be made to confirm the counterproposal. If there is no agreement with the counterproposal, no further action is required and the original proposal remains rejected.

H. ASSIGNMENT OFFICER ACTIONS UPON RECEIPT OF A RETURNED PROPOSAL PACKAGE

The detailer has only two options if the proposal is returned rejected: he can start over again with a new billet and a new proposal, or he can contest the rejection.

If the officer is accepted the detailer drafts the orders and at the same time sends a letter of notification to his officer, giving him frequently his first notice of where he is going and when he will leave.

I. OBSERVATION

With the exception of the computer generated strips, the ODCs and the Microfiche, all of the tools used in the assignment process described above are either hand written or typed

by hand. Most communications are hand delivered to their office destination by the detailer because of the slowness of the interoffice mail and the concern that something could easily get lost. This manual mode keeps the detailers busy with administrative chores rather than making contacts with their constituency that the detailers may better serve them.

IV. AN OVERVIEW OF THE NEW SYSTEM

A. OBJECTIVES

The objectives of introducing automatic data processing into the Assignment System are to permit reliable, rapid processing of quantitative data by both the Placement Officers and the Assignment Officers. It is intended to reduce the shuffling of forms between the various offices of the Naval Military Personnel Command (NMPC) and reduce the amount of time assignment and placement officers spend completing trivial paperwork to support the current assignment system.

It must be stressed that qualitative decisions will continue to be made by the officers assigned as Placement and Assignment Officers. Interpretation of fitness reports and preference cards and the decision of who is to go where will continue to be made by the men and women in NMPC. However they will have more time to make these and other decisions, since the computer will be doing much of the bookkeeping for them.

B. GENERAL CHARACTERISTICS

The proposed system will permit the electronic exchange of information contained in the three principle data records used in NMPC. These files are the Officer Master File (OMF), the Billet File, and the Billet-and-Body File (BABS File). The OMF contains the complete electronic record of all the

officers in the Navy. Most of the information contained in this data base is shown in the Officer Data Card (Figure 8). The Billet File contains comparable information about all the billets in the Navy. Its data base is used in generating manning allowance documents. The BABS File contains some elements from both the OMF and the Billet File. It is used to generate most of the documents which contain information on both a billet and the officer in the billet, for instance a billet strip.

By identifying the fields in each of these files which are of interest in each step of the assignment process the computer programs which constitute this proposal permit the detailers and placement officers to do most of their transactions by making a few prompted entries on the computer.

C. FUNCTIONS PERFORMED

The placement officer can do any of the following:

1. Review a command's allowance
2. Review a command's manning and personnel
3. Post a billet
4. Make an officer available for transfer
5. Review the posted billets
6. Review a list of the officers made available
7. Review, accept, or reject a proposal

Similarly the detailer has a choice of several actions:

1. Review an officer's record
2. Review the list of available officers
3. Propose a specific officer for a specific billet
4. Review the list of proposed officers
5. Review the billets which are posted

The details of each of these will be explained in Chapter VI.

In order to accomplish these the computer maintains a number of working files which replace the slates and ODC's now kept by the assignment and placement officers. For each detailing office there is a file of posted billets with the source COG and the required fill date. This is effectively the coordinators' slates. Each detailer has a file of the available officers in his AOC, with notations as to whether they have been proposed, accepted, or rejected for a job. These files serve the same function as the detailer's slates. The assignment officer also can access the OMF to view the technical qualifications and chronological assignment history of an officer.

The placement officers, in addition to having access to information on the Billet File, have files of officers which they have made available and include the available dates, and files comparable to the detailers which give proposals pending and proposals accepted. These files replace several paper records and the placement officers' slates.

The system is designed to be able to accommodate the placement officers dealing with existent billets, new billets, billets with people in them, or vacant billets. The proposed system can deal with any officer in the data bases, whether he is a new ensign or some one who has been on active duty for a long time.

Thus this system replaces the slates of the detailers, sea and shore coordinators, and placement officers. In addition, it removes the requirement for availability notices, proposal forms and billet posting strips, and reduces the amount of paperwork passed among the various offices.

V. A DESCRIPTION OF THE PROPOSED SYSTEM

A. INTRODUCTION

This chapter will provide a description of the use of an automated data processing (ADP) aided Naval Officer Assignment Process. Figures 10-28 show the cues and responses the assignment or placement officers see and make in carrying out the various steps in an assignment. Where more than one screen is shown in a figure they are separated by a line of asterisks.

B. PLACMENT OFFICER ACTIONS

1. Initialization

After logging on to the computer, entering in the APL mode, and loading and APL workspace (in this case named thesis2), the detailer or placement officer must enter the word "go" to initiate the program. As shown in Figure 10, the first question queries whether the operator is a placement officer. The next question determines either the COG or AOC of the operator. This is retained for future use.

The menu screen next appears and the placement officer is required to select one of the options displayed. A single number entry keys the next screen to appear. The menu permits an exit by entering the number zero. After each action is complete, return to the menu is possible by answering a yes/no question.

```
      GO
                *                   *                   *
IF YOU ARE A DETAILER ENTER THE LETTER: D
IF YOU ARE A PLACEMENT OFFICER ENTER THE LETTER: P

P

ENTER YOUR PLACEMENT COG CODE

1
                *                   *                   *
                          PLACEMENT OFFICER
                             ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW A COMMAND'S ALLOWANCES
      2.    REVIEW A COMMAND'S MANNING AND PERSONNEL
      3.    POST A BILLET
      4.    MAKE AN OFFICER AVAILABLE FOR TRANSFER
      5.    REVIEW BILLETS POSTED
      6.    REVIEW OFFICERS MADE AVAILABLE
      7.    REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION

1
```

Figure 10. Initialization

```
ENTER THE UIC OF THE COMMAND YOU WISH TO VIEW

00011
                *                   *                   *
                          ALLOWANCE FOR: OPNAV

UIC: 00011          HOMEPORT: ARLING          ACTIVITY PRI: H

BSC      BILLET                                          DESIG GRADE
   AQD1   AQD2     SUB1  SUB2    ALLOW AUTH    FY+5      BILPRI
-----------------------------------------------------------------
00065    OP-004 SPEC ASST TO CNO                          1000   K
                                 0000A 00001  00001        1
00194    09X48 SPEC ASST                                  1050   J
                                 0000A 00001  00001        0
01057    OP-090XB DEPUTY ASST CNO/VCNO DEC COORD          1050   J
                                 0000A 00001  00001        1
01670    OP-964C5 SUPPORT ANALYST                         1110   J
              0042P              0000A 00001  00001        1
01920    OP-008A1 AIDE/ADMIN ASST                         1000   J
                                 0000A 00001  00001        1
-----------------------------------------------------------------

DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)
Y
```

Figure 11. Reviewing Allowances

2. Reviewing a Command's Allowances

By entering the number one after the menu the placement officer can check a command's allowance. The screen will clear and the UIC of the command of interest will be queried. On response to that the program goes into the Billet File and retrieves all the information concerning the UIC given. This data is presented as shown in Figure 11. It is the same information as found in the Officer Section of the Manning Authorization Document, OPNAV 1000/16, which the placement officer normally keeps filed near his desk.

3. Reviewing a Command's Manning and Personnel

By entering the number two from his menu the placement officer can view the manning of a specific command. The program "COMMAND" will be invoked which as shown in Figure 12, will prompt him for the UIC of the activity in which he is interested, in this case 20615 for USS John Rodgers (DD 983).

The placement officer is then presented with a list of the personnel assigned to the ship in Billet Sequence Code (BSC) order. This is a very similar presentation to that of the slates the placement officer now uses. The display presents a line about each billet and one line for each officer reported by the command as serving in that billet.

The billet line starts with the BSC and title of the billet. The last entries are the designator and grade for which the billet is written. This information is taken from the Billet File.

```
                    PLACEMENT OFFICER
                      ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW A COMMAND'S ALLOWANCES
      2.    REVIEW A COMMAND'S MANNING AND PERSONNEL
      3.    POST A BILLET
      4.    MAKE AN OFFICER AVAILABLE FOR TRANSFER
      5.    REVIEW BILLETS POSTED
      6.    REVIEW OFFICERS MADE AVAILABLE
      7.    REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION

2
              *                 *                 *
ENTER THE UIC OF THE ACTIVITY OF INTEREST.
20615
              *                 *                 *
COMMAND:DD 983 J RODGERS   UIC:20615   HOMEPORT:CHARLE
-----------------------------------------------------------------
00400    NAVIGATOR                                          1110  K
M 108467490 MESSINA BARRY 1160/K 78/78 8208 790615
00600    OPERATIONS OFFICER                                 1110  J
R 227728864 RUSH RICHARD  1110/J 75/75 8311 8205
00700    CIC OFFICER                                        1110  K
M 150462681 GEAR GARY WYN 1115/K 78/78 8112 811101 Z8112
M 248215549 VAIGNEUR JAME 1165/L 80/7X 8311 810828
00900    COMM AF                                            1110  L
M 577806572 SEBRING LELAN 1165/L 80/7X 8212 801231 Z8403
01100    WEAPONS OFFICER                                    1110  J
01200    AS WEAPONS                                         1110  K
M 043582601 ROSSITTO VINC 1110/K 78/78 8302 810809
01300    FIRST LIEUTENANT                                   1110  L
M 522986297 BALLARD WALTE 1160/K 79/79 8206 800821
01400    FIRE CTL GEN                                       1110  K
M 471686533 THORSON DAVID 1165/K 78/78 8205 790615 A8209
01500    G DIVISION OFFICER                                 1110  L
M 532468961 GILLETTE KARL 1165/L 80/7X 8301 801220
01700    SHIP ENG GASTBN                                    1110  J
01800    MPA GASTURBINE                                     1110  K
01900    DAMAGE CONTROL ASST                                1110  L
M 355469818 HAGEN MARK DA 1110/K 78/78 8206 790615
02000    SHIP ELC                                           1110  L
M 290441567 FEICK CARL MA 1165/K 78/78 8201 790615 Z8207
02050    AUXILIARY MACH                                     1160  L
M 233027598 SWARTHOUT MAR 1160/L 80/7X 8312 811026
M 337460149 DALTON DENNIS 1110/J 77/77 8207 810204
-----------------------------------------------------------------
DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)
N
```

Figure 12. Reviewing a Command's Manning and Personnel

The entries on the officer's record line are familiar data to all Placement and Assignment Officers. The line starts with the Master Indicator, which is usually either "M" indicating the officer is attached to the command, or "R" indicating that the officer has been ordered to the command. The next two fields are the officer's SSN and name. This is followed by his designator and rank, promotion year group and the AOC to which he is assigned, projected rotation data (PRD) in YYMM format, and either the date he reported (YYMMDD) or his expected month of arival (YYMM). Reserve Officers may have a final field showing their expected loss code and date, that is, the earliest date they can leave the service. Considering USS John Rodgers' CIC Billet, Lt Gear has a PRD and LOSS DATE OF December, 1981. Ensign Vaigneur has apparently been assigned from within the command to relieve him. Note that the Master Indicator for both officers is "M" but that Ensign Vaigneur is not scheduled to rotate until November, 1983. In the case of the Operations Officer Billet, the R in front of Lt Rush's SSN indicates he has been ordered to the billet but has not yet reported. This is confirmed by the fact that the last field has a four digit estimated month of arrival rather than a six digit actual arrival date.

There are some anomolies in Figure 12 due to data base limits. Several of the billets appear to be gapped, that is no one is assigned. It is unlikely for instance that there would be no one serving in any of the three principal department head billets (operations, weapons, and engineering). Probably

the incumbents are lieutenant commanders who are in a different AOC and therefore not in the BABS Extract. It is not unusual for a billet to be filled by an officer who is one up or one down in grade from the required grade. Similarly the MPA billet appears gapped. It is possible it is being filled by a limited duty officer or chief warrant officer, again in different AOCs, or that the command is in the process of reassigning Lt Dalton from the Auxillary Machinery billet but has not yet reported it.

4. Posting a Billet

By entering the number 3 from the menu the placement officer can begin the process of posting a billet (Figure 13). The first question to which he must respond is to identify the UIC of the command which has the billet he wants to post. The programs then search the Billet File and retrieve and display all of the billets in that command. The Placement Officer must next provide the BSC of the particular billet he wants to post and then the AOC to which the billet is to go. Finally the required fill date must be supplied by the placement officer. The program then provides an acknowledgement that the billet has been posted. In Figure 13 five of the OPNAV billets are displayed and the operator has identified the last billet as the one of interest, indicating it should be posted with AOC 7 and marked as an October, 1982 requirement.

```
                    PLACEMENT OFFICER
                      ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW A COMMAND'S ALLOWANCES
      2.    REVIEW A COMMAND'S MANNING AND PERSONNEL
      3.    POST A BILLET
      4.    MAKE AN OFFICER AVAILABLE FOR TRANSFER
      5.    REVIEW BILLETS POSTED
      6.    REVIEW OFFICERS MADE AVAILABLE
      7.    REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION

3

                *               *               *
ENTER THE FIVE DIGIT UNIT IDENTIFICATION CODE (UIC)
OF THE COMMAND

00011

                *               *               *
THE FOLLOWING BILLETS ARE ALLOWED FOR UIC 00011, OPNAV

BSC    BILLET                                    DESIG GRADE
-----------------------------------------------------------
00065  OP-004 SPEC ASST TO CNO                   1000   K
00194  09X48 SPEC ASST                           1050   J
01057  OP-090XB DEPUTY ASST CNO/VCNO DEC COORD   1050   J
01670  OP-964C5 SUPPORT ANALYST                  1110   J
01920  OP-008A1 AIDE/ADMIN ASST                  1000   J
-----------------------------------------------------------
ENTER THE BSC OF THE BILLET YOU WANT TO POST.
AN ENTRY OF '0' WILL EXIT THE PROGRAM.

01920

ENTER THE AOC TO WHICH YOU WANT THIS BILLET
POSTED.

7

ENTER THE 4 DIGIT REQUIRED FILL DATE FOR THE
BILLET SPECIFIED(YYMM)

8210

THE FOLLOWING BILLET HAS BEEN POSTED TO AOC 7:
COMMAND: OPNAV          UIC: 00011  DATE REQUIRED: 8210
BILLET: OP-008A1 AIDE/ADMIN ASST          BSC: 01920
-----------------------------------------------------------

DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)
```

Figure 13. Posting a Billet

5. Making an Officer Available for Transfer

The fourth routine permits the placement officer to make an officer available for transfer. To accomplish this the Placement Officer need enter only the SSN of the individual he wants to process and the month and year in which that officer is to available. This process can be seen in Figure 14. The program uses the previously reported COG code and the COG code of the billet in which the officer is serving to conduct a COG Security Check. If it fails the program will print that the COGs do not match and exit the program to the menu screen. If the check passes, the program adds the officer to the file of available officers of the AOC to which he belongs in the data base.

6. Review of Posted Billets

By entering the number five from the menu screen the placement officer can view the billets which he has posted to any of the AOCs. As seen in Figure 15 this list is in UIC, BSC order to help the placement officer quickly identify the billets of interest. The information he gleans from this file helps ensure that the placement officer does not post a billet twice or miss posting any billets he intends to post.

7. Reviewing Officers Made Available

By entering a six the placement officer will be able to review the file of officers he has made available for transfer. The file is organized according to availability date and SSN within each month. Figure 16 shows LT Denis,

```
                    PLACEMENT OFFICER
                      ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW A COMMAND'S ALLOWANCES
      2.    REVIEW A COMMAND'S MANNING AND PERSONNEL
      3.    POST A BILLET
      4.    MAKE AN OFFICER AVAILABLE FOR TRANSFER
      5.    REVIEW BILLETS POSTED
      6.    REVIEW OFFICERS MADE AVAILABLE
      7.    REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION

4

ENTER THE SSN OF THE OFFICER YOU WANT TO MAKE AVAILABLE

001422107

ENTER THE YEAR AND MONTH IN WHICH THE OFICER WILL BE
AVAILABLE (FORMAT:  YYMM)

8209

COG SECURITY CHECK: ok.

THE FOLLOWING OFFICER HAS BEEN MADE AVAILABLE TO AOC 75:
8209  001422107  DENIS DAVID ARTHUR          J
-----------------------------------------------------

DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)

Y
```

Figure 14. Making an Officer Available for Transfer

PLACEMENT OFFICER
ACTION MENU

ENTRY	DESCRIPTION
0.	END THE SESSION
1.	REVIEW A COMMAND'S ALLOWANCES
2.	REVIEW A COMMAND'S MANNING AND PERSONNEL
3.	POST A BILLET
4.	MAKE AN OFFICER AVAILABLE FOR TRANSFER
5.	REVIEW BILLETS POSTED
6.	REVIEW OFFICERS MADE AVAILABLE
7.	REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION

5

* * *

BILLETS POSTED BY COG 1

UIC	COMMAND	BSC	BILLET	AOC	FILL DATE
00011	OPNAV	01670	OP-964C5 SUPPORT ANAL	7	8203
00011	OPNAV	01920	OP-008A1 AIDE/ADMIN A	7	8310
20014	LSD 39 MTVERNON	00400	NAVIGATOR	7	8202
20014	LSD 39 MTVERNON	00600	OPERATIONS	7	8205
20014	LSD 39 MTVERNON	00700	CIC	7	8205
20014	LSD 39 MTVERNON	00900	COMM AF	7	8204
20056	FF1085 DB BEARY	00300	NAVIGATOR	7	8204
20056	FF1085 DB BEARY	00500	OPERATIONS	7	8205
20056	FF1085 DB BEARY	01600	SHIP ENG 12 STM	7	8504
20114	AE 33 SHASTA	00700	OPS	7	8204

DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)

Y

Figure 15. Reviewing Posted Billets

```
                    PLACEMENT OFFICER
                      ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW A COMMAND'S ALLOWANCES
      2.    REVIEW A COMMAND'S MANNING AND PERSONNEL
      3.    POST A BILLET
      4.    MAKE AN OFFICER AVAILABLE FOR TRANSFER
      5.    REVIEW BILLETS POSTED
      6.    REVIEW OFFICERS MADE AVAILABLE
      7.    REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION

6
              *               *               *
AVAIL SSN         NAME                        GRADE  AOC
-----------------------------------------------------------
8108  001408313   COURTEMANCHE LINDA MARIE    K      79
8110  001405238   WHITE PAMELA ANNE           J      73
8202  449061810   MARTIN DANNY FLOYD          L      7X
8209  001422107   DENIS DAVID ARTHUR          J      75
-----------------------------------------------------------
DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)

Y
```

Figure 16. Reviewing Officers Made Available

among others, to be available in September, 1982. He is the officer who was made available in the last step.

8. Reviewing a Proposal

In this step the placement officer reviews, accepts or rejects an officer for a billet. The operator first has an opportunity to scan all of the proposals which are outstanding. He views them in groups of three, and after each screen he has the opportunity to see the remainder, exit or act. An example of this can be seen in Figures 17 through 19.

If he wants to accept an officer for the billet indicated, he must enter the appropriate code and the sequence

```
                PLACEMENT OFFICER
                  ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW A COMMAND'S ALLOWANCES
      2.    REVIEW A COMMAND'S MANNING AND PERSONNEL
      3.    POST A BILLET
      4.    MAKE AN OFFICER AVAILABLE FOR TRANSFER
      5.    REVIEW BILLETS POSTED
      6.    REVIEW OFFICERS MADE AVAILABLE
      7.    REVIEW A PROPOSAL

ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION
7
```

Figure 17. Reviewing a Proposal

number of the proposal. The program will prompt him for any short message for the detailer which he may want to append to the acceptance. It then enters the word "accepted" followed by the proposal file of both the detailer who made the proposal and the placement officer who accepted it. A sample acceptance is shown in Figure 18 and the resultant message on the list of proposed officers is shown in Figure 19 under the information on Lieutenant Dandeneau.

If the decision is not to accept the officer, the program again offers the opportunity of sending a message explanation and enters this line into the fifth line of the proposal in the detailer's proposal file. The proposal is automatically deleted from the placement officer's file.

Simultaneously the status block of the file of posted billets for the detailer's parent office is updated from "p",

```
ENTER THE COG WHOSE PROPOSAL YOU WANT TO CHECK
10
                *               *               *

PROPOSALS 1 TO 3

NAME: DENIS DAVID ARTHUR  SSN:001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)     (2)      (3)
AQD'S: 77LA9 78LC1
20056  FF1085 D B BEARY 01600 SHIP ENG 12 STM          10

NAME: DANDENEAU ALLEN     SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)     (3)
AQD'S: 77LA9 78LC1
20114  AE   33 SHASTA   00700 OPSERATIONS              10

NAME: KLETT MARK NEIL     SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)     (3)
AQD'S: 77LA9 78LC1
20014  LSD  39 MTVERNON 00600 OPERATIONS               10

ENTER:    0       TO EXIT WITHOUT ANY FURTHER ACTION
ENTER:    1       TO VIEW THE NEXT THREE PROPOSALS
ENTER:    2       TO ACCEPT A PROPOSAL
ENTER:    3       TO REJECT A PROPOSAL
PLEASE NOTE THE NUMBER OF THE PROPOSAL OF INTEREST

      2
                *               *               *

ENTER THE NUMBER OF THE PROPOSAL YOU WANT TO ACCEPT.
IF YOU DO NOT REMEMBER ENTER ZERO TO SEE THE
PROPOSALS AGAIN.

      2
DO YOU WANT TO APPEND A MESSAGE OF 65 CHARACTERS OR LESS
FOR THE DETAILER? (Y/N)
      N
```

Figure 18. Accepting a Proposal

```
ENTER THE COG WHOSE PROPOSAL YOU WANT TO CHECK
      10
            *              *              *
PROPOSALS 1 TO 3

NAME: DENIS DAVID ARTHUR   SSN: 001422107     YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
20056  FF1085 D B BEARY 01600 SHIP ENG 12 STM          10

NAME: DANDENEAU ALLEN      SSN: 001422107     YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
20114  AE   33 SHASTA   00700 OPERATIONS              10
ACCEPTED.
NAME: KLETT MARK NEIL      SSN: 001422107     YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
20056  FF1085 D B BEARY 00500 OPERATIONS               10

ENTER:    0       TO EXIT WITHOUT ANY FURTHER ACTION
ENTER:    1       TO VIEW THE NEXT THREE PROPOSALS
ENTER:    2       TO ACCEPT A PROPOSAL
ENTER:    3       TO REJECT A PROPOSAL
PLEASE NOTE THE NUMBER OF THE PROPOSAL OF INTEREST

     3
            *              *              *

ENTER THE NUMBER OF THE PROPOSAL YOU WANT TO REJECT.
IF YOU DO NOT REMEMBER ENTER ZERO TO SEE THE
PROPOSALS AGAIN

      3
DO YOU WANT TO APPEND A MESSAGE OF 65 CHARACTERS OR LESS
FOR THE DETAILER? (Y/N)
      Y
ENTER THE MESSAGE YOU WANT TO SEND
NOT SENIOR ENOUGH
```

Figure 19. Rejecting a Proposal

which indicated the billet was involved in a proposal, to "A", indicating someone had been accepted for the billet, or a blank, indicating it is available again.

C. ASSIGNMENT OFFICER ACTIONS

1. Initialization

The initialization for the detailer is very similar to that of the placement officer, except he responds with a "D" to the first question and with his AOC to the second question. This is shown in Figure 20. The detailer's menu options are different but function in the same way as previously described in the placement officer's case.

2. Reviewing an Officer's Record

If the assignment officer responds to the menu with the number one, he will be queried as to the SSN of the officer whose record he wants to review. Once that is entered, the program will search through the OMF and return a sketch of the officer's historic record, similar to that shown in Figure 20.

3. Reviewing the List of Available Officers

By entering the number two the detailer can scan the list of officers who have been made available to his AOC. If he is using a supervisors AOC entry code, he can scan the lists of any of the AOC's to which that code has been granted access. This is the case in Figure 21 where the AOC entered earlier (see Figure 19) was a "master" code and now he must specify one of the two digit AOC's to carry out this action.

```
GO
                *                   *                   *
IF YOU ARE A DETAILER ENTER THE LETTER: D
IF YOU ARE A PLACEMENT OFFICER ENTER THE LETTER: P

D

ENTER YOUR ASSIGNMENT OFFICER CODE (AOC)

1
                *                   *                   *
                  ASSIGNMENT OFFICER (DETAILER)
                            ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW AN OFFICER'S RECORD
      2.    REVIEW THE LIST OF AVAILABLE OFFICERS
      3.    PROPOSE A SPECIFIC OFFICER
      4.    REVIEW THE FILE OF PROPOSED OFFICERS
      5.    REVIEW BILLETS WHICH ARE POSTED


ENTER THE NUMBER CORRESPONDING TO THE ACTION DESIRED.

1
                *                   *                   *
ENTER THE SSN OF THE OFFICER WHOSE RECORD YOU WANT
TO REVIEW.
001422107
                *                   *                   *
                       OFFICER RECORD REVIEW

SSN:001422107 NAME:DENIS DAVID ARTHUR DESIG:1110 GRADE:J
 PRD:8112 YRGP:75  DEPENDENT CODE:1 0    AOC:75  COG:20
    SUBSPECIALITIES: (1)          (2)           (3)
AQD'S: 77LA9 78LC1
            FROM TO   ACTIVITY    TYPE HOMEPORT MO.DEPL
CURRENT DUTY:8105      SWOSCOLCOM      NPT RI
             7903 8103 NAVPGSCOL     S  MONTRY
             7602 7903 AE 32 FLINT   C  CONCRD    11
-----------------------------------------------------------
DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)
Y
```

Figure 20. Detailer Initialization and Reviewing a Record

```
                ASSIGNMENT OFFICER (DETAILER)
                        ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW AN OFFICER'S RECORD
      2.    REVIEW THE LIST OF AVAILABLE OFFICERS
      3.    PROPOSE A SPECIFIC OFFICER
      4.    REVIEW THE FILE OF PROPOSED OFFICERS
      5.    REVIEW BILLETS WHICH ARE POSTED

ENTER THE NUMBER CORRESPONDING TO THE ACTION DESIRED.

2
                *               *               *
ENTER THE AOC YOU WANT TO CHECK
75
                *               *               *
                            AOC  75
                OFFICERS AVAILABLE FOR TRANSFER
AVAIL
DATE SSN         NAME           RANK DESIG PRD COMMAND
8202 001422107 DENIS DAVID AR   J 1110  8206 SWOSCOLCOM
8202 015442389 KLETT MARK NEI   J 1110  8204 SWOSCOLCOM
8205 495543770 PURDY MARY FRA   J 1100  8205 NAVMILPERSC
8212 013404737 DANDENEAU ALLEN  J 1110  8212 SWOSCOLCOM
-----------------------------------------------------
DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)

Y
```

Figure 21. Reviewing the List of Available Officers

4. Proposing an Officer

An entry of three after the menu will start the proposal process. The detailer will first have to specify an officer by his SSN, and then answer a series of questions which permit the computer to screen the file of posted billets for billets which have these prerequisites. This gives the detailer a choice from which to choose a single billet against which to propose his constituent. Figures 22 through 25 show the various cues and responses in this process. While the parameters by which the postings will be culled is being compiled, a brief extract of the officer's record is shown. There are two places to loop back or stop without actually making a proposal. The first is after the list of possible billets is compiled, when the possibility of changing some of the parameters is offered in order to create a new list which may be more or less restrictive. The second opportunity to loop back is after the proposal has been displayed in its final form but before it is sent over to the placement officer. If the detailer detects something with which he does not agree, he can loop back and select another billet. If the proposal is satisfactory it goes to the placement officer who posted the billet originally.

5. Reviewing the File of Proposed Officers

This section permits the detailer to see the list of officers he has proposed and what the status of each proposal is. As seen in Figures 26 and 27, each proposal is a five line entry. The first three lines identify the officer and his

```
                ASSIGNMENT OFFICER (DETAILER)
                      ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------
      0.    END THE SESSION
      1.    REVIEW AN OFFICER'S RECORD
      2.    REVIEW THE LIST OF AVAILABLE OFFICERS
      3.    PROPOSE A SPECIFIC OFFICER
      4.    REVIEW THE FILE OF PROPOSED OFFICERS
      5.    REVIEW BILLETS WHICH ARE POSTED

ENTER THE NUMBER CORRESPONDING TO THE ACTION DESIRED.
      3
            *                 *                 *
THIS PROGRAM WILL CULL THE LIST OF POSTED BILLETS FOR
ONES WHICH HAVE THE SPECIFIED QUALIFICATIONS.
ENTER THE 9 DIGIT SSN OF THE OFFICER YOU WANT TO ASSIGN.
001422107
```

Figure 22. Proposing an Officer, Initializing

characteristics. In Figure 27 the screen shows D. A. Denis, SSN 001422107, who is in Year Group 75 and AOC 75, is a Surface Warfare Qualified (1110) Lieutenant (J) with no Subspecialities but has the two Additional Qualification Designators listed and has been proposed for the USS DONALD B. BEARY FF 1085 (UIC 20056) Engineer Officer billet (BSC 01600) for which the Placement Officer has COG Code 10. When a proposal is accepted or rejected, that information will appear in the fifth line with any short message the placement officer may want to send by way of explaination. The proposals are presented to the detailer in pages of three with their numbers at the top of the screen. Should a detailer want to remove

```
NAME: DENIS DAVID ARTHUR  SSN: 0Q1422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
QUALIFICATIONS: (ENTER '0' IF NONE IS TO BE SPECIFIED.)
IF YOU WANT TO LIMIT THE SEARCH TO A SPECIFIC
DESIGNATOR, ENTER THAT DESIGNATOR.
(NOTE: ONLY THE FIRST 3 DIGITS ARE USED)
      1110
                *                 *                 *
NAME: DENIS DAVID ARTHUR  SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
IF YOU WANT BILLETS ONLY OF A CERTAIN GRADE, ENTER THE
SINGLE LETTER CODE CORRESPONDING TO THAT RANK.
    L = ENSIGN                          G = CAPTAIN
    K = LTJG                            F = COMMODORE
    J = LIEUTENANT                      E = REAR ADMIRAL
    I = LIEUTENANT COMMANDER            D = VICE ADMIRAL
    H = COMMANDER                       C = ADMIRAL
J
                *                 *                 *
NAME: DENIS DAVID ARTHUR  SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
IF YOU WANT TO CONSIDER ONLY BILLETS WITH A CERTAIN AQD,
ENTER THAT SINGLE THREE CHARACTER AQD:
0
                *                 *                 *
NAME: DENIS DAVID ARTHUR  SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
IF YOU WANT TO INCLUDE ONLY BILLETS OF A SPECIFIC
SUBSPECIALITY, ENTER THE TWO DIGITS WHICH SPECIFY THAT
SUBSPECIALITY (e.g. 42 for 0042P).
      0
```

Figure 23. Culling the Postings

```
THE FOLLOWING POSTED BILLETS MATCH THE CHARACTERISTICS
YOU HAVE SPECIFIED.

8203 00011 OPNAV                01670 OP-964C5 SUPPORT ANAL
8204 20114 AE   33 SHASTA      00700 OPS
8205 20014 LSD  39 MTVERNON    00600 OPERATIONS
8205 20056 FF1085 D B BEARY    00500 OPERATIONS
8504 20056 FF1085 D B BEARY    01600 SHIP ENG 12 STM

IF NONE OF THE BILLETS LISTED ABOVE ARE SATISFACTORY,
ENTER THE LETTER 'N' AND THE PROGRAM WILL RECYCLE AND
PERMIT YOU TO CHANGE THE PARAMETERS WHICH GENERATED
THE LIST.
IF YOU SEE THE BILLET YOU WANT, ENTER 'C' TO CONTINUE
AND PROPOSE YOUR OFFICER.
ENTER '0' TO EXIT THIS FUNCTION.

C
              *              *              *

REQD  UIC    COMMAND           BSC   BILLET
8203 00011 OPNAV             01670 OP-964C5 SUPPORT ANAL
8204 20114 AE   33 SHASTA    00700 OPS
8205 20014 LSD  39 MTVERNON  00600 OPERATIONS
8205 20056 FF1085 D B BEARY  00500 OPERATIONS
8504 20056 FF1085 D B BEARY  01600 SHIP ENG 12 STM

ENTER THE UIC OF THE COMMAND OF THE BILLET AGAINST
WHICH YOU WANT TO PROPOSE YOUR OFFICER.

20014

ENTER THE BSC OF THE BILLET.

00600
```

Figure 24. Proposing an Officer, the Options

a proposal from the list, for instance because the officer has not been accepted for the billet, he must enter the letter "D" after the current proposals have been viewed. The program will then ask him for the proposal number in order to delete the correct one.

```
YOU HAVE CHOSEN THIS BILLET AGAINST WHICH TO PROPOSE
YOUR OFFICER:
BILLET:
20014  LSD  39 MTVERNON 00600 OPERATIONS                10

OFFICER:-------------------------------------------------

NAME: DENIS DAVID ARTHUR  SSN: 001422107   YG/AOC:75/75

DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)

AQD'S: 77LA9 78LC1

THIS IS A CONFIRMATION CHECK.----------------------------

IF THE ABOVE IS CORRECT, ENTER 'C' TO CONTINUE.
IF IT IS IN ERROR, ENTER 'N' AND THE PROGRAM WILL
RECYCLE.

C
              *              *              *

THE FOLLOWING HAS BEEN PROPOSED TO COG 10:
NAME: DENIS DAVID ARTHUR  SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
20014  LSD  39 MTVERNON 00600 OPERATIONS                10

DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)-------------
Y
```

Figure 25. Proposing an Officer, the Final Proposal

6. Reviewing the Billets which are Posted

This last section permits the detailer to screen the list of postings for his office. This action is helpful sometimes when talking about possible assignments with people on the telephone. As is seen in Figure 28, the dispaly for each billet consists of two lines which give the specifics of the billet. For the most part this is the same information as is provided on the billet posting strip currently in use.

```
                ASSIGNMENT OFFICER (DETAILER)
                      ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------
      0.    END THE SESSION
      1.    REVIEW AN OFFICER'S RECORD
      2.    REVIEW THE LIST OF AVAILABLE OFFICERS
      3.    PROPOSE A SPECIFIC OFFICER
      4.    REVIEW THE FILE OF PROPOSED OFFICERS
      5.    REVIEW BILLETS WHICH ARE POSTED

ENTER THE NUMBER CORRESPONDING TO THE ACTION DESIRED.
4
                *               *               *
ENTER THE AOC WHOSE PROPOSALS YOU WANT TO CHECK
75
```

Figure 26. Reviewing Proposals

```
PROPOSALS 1 TO 3

NAME: DENIS DAVID ARTHUR  SSN: 001422107   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9 78LC1
20056  FF1085 D B BEARY 01600 SHIP ENG 12 STM          10


NAME: DANDENEAU ALLEN SSN: 013404737   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 77LA9
20114  AE33   SHASTA    00700 OPERATIONS               10

NAME: KLETT MARK NEIL SSN: 015442389   YG/AOC:75/75
DESIG/RANK:1110/J SUBSPECIALITIES:(1)      (2)      (3)
AQD'S: 78LA9
20014  LSD  39 MTVERNON 00600 OPERATIONS               10


ENTER:      D         TO DELETE A PROPOSAL
ENTER:      E         TO EXIT THE PROGRAM
ENTER:      R         TO VIEW THE PROPOSALS AGAIN

D

               *              *              *

ENTER THE NUMBER OF THE PROPOSAL.  IF YOU DO NOT
REMEMBER, ENTER 0 TO VIEW THE PROPOSALS AGAIN.

      3

DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)

Y
```

Figure 27. Deleting a Proposal

```
                ASSIGNMENT OFFICER (DETAILER)
                        ACTION MENU

   ENTRY    DESCRIPTION
-----------------------------------------------------
      0.    END THE SESSION
      1.    REVIEW AN OFFICER'S RECORD
      2.    REVIEW THE LIST OF AVAILABLE OFFICERS
      3.    PROPOSE A SPECIFIC OFFICER
      4.    REVIEW THE FILE OF PROPOSED OFFICERS
      5.    REVIEW BILLETS WHICH ARE POSTED

ENTER THE NUMBER CORRESPONDING TO THE ACTION DESIRED.
      5
            *                 *                 *
ENTER THE AOC OF THE POSTING LIST YOU WANT TO EXAMINE
      7
            *                 *                 *
FILL  UIC    COMMAND            BSC    BILLET
COG     DESIG      GRADE      AQD 1   AQD 2  SUB 1 SUB 2
-----------------------------------------------------
8202  20014  LSD   39 MTVERNON  0Q400  NAVIGATOR
10      1110          K
8203  00011  OPNAV              01670  OP-964C5 SUPPORT
10      1110          J                    0042P
8204  20014  LSD   39 MTVERNON  00900  COMM AF
10      1110          K
8204  20056  FF1085 D B BEARY   00300  NAVIGATOR
10      1110          K
8204  20114  AE    33 SHASTA    00700  OPS
10      1110          J
8205  20014  LSD   39 MTVERNON  0Q600  OPERATIONS
10      1110          J
8205  20014  LSD   39 MTVERNON  0Q700  CIC
10      1110          K
8205  20014  LSD   39 MTVERNON  00700  CIC
10      1110          K
8205  20056  FF1085 D B BEARY   00500  OPERATIONS
10      1110          J             BA1
8504  20056  FF1085 D B BEARY   01600  SHIP ENG 12 STM
10      1110          J                    0054S
-----------------------------------------------------
DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)
N
```

Figure 28. Review Posted Billets

VI. CONCLUSIONS AND FUTURE WORK

A. CONCLUSIONS

The introduction of significant Automatic Data Processing (ADP) into the Officer Assignment Process of the Navy is long overdue. The proposal presented in this thesis can provide the Assignment and Placement Officers with the computer tools necessary to perform many of their tasks. Implementation would result in the change of the responsibilities for many of the redundant and trivial accounting procedures which now occupy much of their time to the computer. Additionally the use of the computer makes the consideration of all possible billets prior to making a proposal, given a set of constraints, more assured than if the search was done manually.

This model replaces the availability and proposal forms as well as eliminating all of the handling their distribution requires. It also replaces the slates of the detailer and placement officers. As will be discussed in the next section, it could also eliminate the necessity of maintaining Officer Data Cards and a file of preference cards on each officer. Use of the model as a first step in the automation of the assignment of Naval Officers will make both the placement officer and detailer more available to the people in the fleet whom they represent and thus should make them more effective in their jobs.

B. RECOMMENDATIONS FOR FURTHER WORK

There are several areas which were either not addressed at all or which should be handled more thoroughly in future work. The reason for not considering them here was principally to limit the subject to one which could be considered within the time constraints of a thesis.

One of the areas which needs immediate attention is the automation of the Officer Duty Preference Card. There are many possible variations in which the automation could manifest itself. One would be that each of the Personnel Support Detachments in the field would be equipped to enter an officer's preferences into the data base. However a more modest proposal would be that the information would be entered in Washington, but that the current form would be redesigned to suit ADP purposes, and that a dictionary of allowable entries would be available in the field and aboard ship (e.g. computer recognized port, billet, and command abbreviations). The card could be screened electronically by the officer's detailer and certain requests supressed if they were inappropriate (e.g. a LTJG who wants to be assigned to command a destroyer). Probably the detailer would be interested in using the preference card after he has culled the file of posted billets for the general characteristics of designator, rank, subspeciality and AQD. At that time he could electronically search the culled list of available billets for matches with the preference card and from that list make his proposal. The largest problem would

probably be the composition of the dictionary of abbreviations. Geographic locations are already coded both by six or fewer letters and by a ten digit code. The coding of billets and commands would be more difficult since there is little standardization.

There is room for improvement in both security protection and erroneous entry protection. There is a COGSECURITY function as described in Appendix A to protect Billet File information, however no similar function exists for the Officer Master File (OMF) data. This is because the OMF Extract did not contain COG or AOC information; the complete OMF does have this information however. Due to the Privacy Act only supervisory personnel and the specific assignment or placement officer responsible for a particular officer or billet should be granted access. Accordingly "AOCSECURITY" and "COGSECURITY" functions should be written for use with the OMF.

Since many of the responses required of the detailers and placement officers are either UIC, BSC, SSN, or "Y"/"N", protection against most types of errors was included. The SSN, UIC, and BSC entries are expected to be all numeric. They are then entered as character data and checked for blanks and the right number of characters. If that is correct they are converted from character data to numerical data to take advantage of the numerical (SSN or UIC-BSC order) structure of the data files. If no matches with the SSN or UIC of interest are found, an appropriate statement will be displayed. However if an

alphabetic character is entered to an SSN, UIC, or BSC query, the program will fail and a system error message will appear. The user, however, may then have another chance to provide the correct response. This method of searching may cause problems when looking for component UIC's for example which may contain some alphabetic characters. This problem could be overcome with a more complex program if necessary.

The data which is presented for the detailer's use concerning the record of an officer could be expanded. The data retrieval system currently in use at NMPC, called the PRO System, offers nine pages or screens of information with much more detail than the one given in this model.

The detailer in screening billets against which to propose his officers may want to consider more characteristics than are permitted herein. For example the geographic location of a command, even if nothing more than the coast, is often helpful in narrowing down the options. Additionally there may be more than one designator or rank combination which he may wish to consider. For example the detailer of a senior LTJG Surface Warfare Officer may want to consider billets requiring a LTJG or LT and either a 1050 or 1110 designator. As this program is written it would require four separate runs to gather all of that data (LTJG, 1110; LTJG, 1050; LT, 1110; LT, 1050).

One of the areas which would have to be implemented in order to use these programs would be some sort of feedback system. When a set of orders are issued for instance, probably all of

the temporary files should be purged of the officer's records. That would take care of retirement or hospitalization as well as normal change of station. However, should an officer die on active duty there would also need to be a purging of the files.

Given the information on the proposal, there is no reason why the system described in this document could not be expanded to prepare a letter of notification to the officer involved and draft the set of orders. Implementation of the latter might require some careful attention in order to prevent taxing the often limited typing skills of the placement and assignment officers or expecting their typists to do too much of the work.

One final addition would be for the computer to generate lists of billets for which the incumbent's PRD is some specific number of months away, for example eighteen months. The placement officer could use this list to ensure that he posts for all billets that he should. Similarly when a billet joins his list of accepted proposals, the incumbent's name should appear as an officer to be made available for transfer.

With this model as a starting point and incorporating some or all of the additions discussed above the Navy Officer Assignment Process could be improved significantly. These improvements would manifest themselves in freeing the officers in positions of contact with the fleet from tasks which do not directly contribute directly to their abilities to serve their constituency.

APPENDIX A

TECHNICAL SPECIFICATIONS

A. INTRODUCTION

The programs used in this thesis were written in A Programming Language (APL) on a VS APL System operating under the control of the Conversational Monitor System (CMS). The installation where the programming was done has an IBM 3033AP System. The programs themselves were designed to be run on IBM 3278-2 video display terminals or their equivalent. This type of terminal displays a page of 22 rows and 79 columns of output. Some of the output displays shown will therefore be reduced in width to fit into the dimensions of this document.

B. THE DATA BASE

There were three principal sources for most of the data used by the programs: the Officer Master File (OMF), the Billet File, and the Billets-and-Bodies (BABS) File. The data were stored in CMS Mass Storage Devices and then accessed by using the APL Auxiliary Processors. Extracts of the OMF and Billet File were made in July, 1981. The OMF extract contains information on all officers with the rank of Ensign, Lieutenant Junior Grade, or Lieutenant with designators of 1100 (General Unrestricted Line (URL), Regular), 1105 (General URL, Reserve), 1110 (Surface Warfare Qualified, URL,

Regular, 1115 (Surface Warfare Qualified, URL, Reserve), 1160 (Surface Warfare Trainee, URL, Regular), or 1165 (Surface Warfare Trainee, URL, Reserve). The Billet File extract contains data concerning billets with designators of 1000 (requiring any line officer), 1050 (requiring any Warfare Specialist, i.e. Surface, Submarine or Air), 1110, 1115, 1160, or 1165 which require officers in the grade of Lieutenant or below. Additionally only about half of the data elements in the actual files were included in the extract because the remainder contained information not pertinent for present purposes. In spite of this the extracts were very large: the OMF extract has a logical record length of 583 and contained 8628 records; the Billet File extract's logical record length was 278 and had 637 records. The data elements of each file are shown in Figures 29 and 30. The OMF is organized by the

Element	Length	Initial Element
SSN	9	1
Name	27	10
Grade	1	37
Year Group	3	38
Designator	4	41
Projected Rotation Date (PRD)	4	45
Placement Officer COG	2	49
Mission Activity Code	2	51
Dependent Code	2	53
Assigment Officer Code (AOC)	2	55
Report Date	4	57
Primary Duty	14	61
Billet Sequence Code (BSC)	5	75
Primary Subspeciality	5	80
Secondary Subspeciality	5	85
Tertiary Subspeciality	5	90
History of Service Schools	45	95
History of Navy Officer Billet Codes (NOBC)	70	140
Past Duty Stations	264	210
(8 groups of 33 each including present duty)		
Additional Qualification Designation Counter	2	474
Additional Qualification Designations (AQD)	60	476
(12 groups of 5 each)		
unused space	48	536

Figure 29. OMF Extract Data Elements

Element	Length	Initial Element
Unit Identification Code (UIC)	5	1
Billet Sequence Code (BSC)	5	6
Bureau Activity Number	10	11
Activity Long Name	30	21
Activity Short Name	16	51
Activity Mission Code (AMC)	2	67
Activity Priority	1	69
Billet Priority	1	70
Geographic Location Code (GEOLOC)	8	71
Homeport (HPT)	6	79
Designator	4	85
Grade	1	89
Primary Additional Qualification Code (PAQD)	3	90
Secondary Additional Qualification Code (SAQD)	3	93
Primary Navy Officer Billet Code (PNOBC)	4	96
Secondary Navy Officer Billet Code (SNOBC)	4	100
Tour Position Indicator Code (TPIC)	5	104
Billet Name	40	109
Primary Subspeciality	5	149
Secondary Subspeciality	5	154
Current Fiscal Year Authorization (FYC)	5	159
Projected Authorization in 5 Years (FY5)	5	164
Allowance (current)	5	169
Type Assignment	1	174
Pdate	14	175
Unused space	189	89

Figure 30. Billet File Extract Elements

social security number (SSN) of the officer and the Billet File is in Unit Identification Code (UIC) and Billet Sequence Code (BSC) order.

A copy of the entire Billets-and-Bodies (BABS) File was obtained in January, 1982. The BABS File is a two part file, the first half has only billet information in Bureau Activity Number Order; the second half has the people in the billets as well as the billets themselves and is ordered according to social security numbers. As expected, the BABS File is massive, containing 90,887 records of logical length 550. The extract (BABS1) contains 8706 records from the second

part of BABS is outlined in Figure 31. It contains the records of lieutenants, lieutenants junior grade, and ensigns who had the designators 1100, 1105, 1110, 1115, 1160, or 1165.

Element	Initial Element	Length
Mission indicator	1	1
Activity 10 Digit Code	2	10
Activity Short Name	12	16
Homeport	28	6
Geographic Responsibility	34	1
Billet Sequence Code	35	5
Billet COG Code	40	2
Billet Title	42	26
Billet Grade	68	1
Billet Designator	69	4
Geographic Location Code	73	8
Name	81	19
Officer Designator	100	4
Officer Grade	104	1
Dependent Code	105	2
Officer COG Code	107	2
Primary Duty	109	14
Promotion status	23	1
Year Group	124	3
Date Reported or EDA	127	6
Projected Rotation Date	133	4
Estimated Loss Code/Date	137	5
Social Security Number	142	9
Assignment Officer Code	151	2
Parent UIC	153	5
Component UIC	158	5
End of file	162	

Figure 31. BABS File Extract Data Elements

C. THE APL FUNCTIONS

1. General

Each of the APL functions or programs were made as user friendly and as interactive as possible. Figure 32 shows the list of APL functions which are necessary to run the entire program.

ASSIGN1	BRACKETNHALFSSN	BRACKETNHALFUIC
CLEARSCREEN	CMSCREAD	COGSECURITY
COMMAND	DMENU	FILESIZE
GO	INSERT3	LINE
MAKEAVAIL	PMENU	POST
SCREENALLOW	SCREENAVAILS	SCREENMADEAVAILS
SCREENPOSTED	SCREENPOSTINGS	SCREENPROPOSALS
SCREENRECORD	SKIP	

Figure 32. The APL Functions

2. GO

This is the function which is the initiating function and serves to divide the Placement Officers from the Assignment Officers. It also identifies the COG or AOC for future use. The GO function also calls the appropriate menu for the next step.

3. DMENU and PMENU

These two functions do the appropriate job for either the detailers or placement officers. They provide menus from which to choose the action the operator wants and then calls the appropriate function to carry out that action. Upon completion they permit the option of looping back to the menu to specify some other action.

4. BRACKETNHALFSSN and BRACKETNHALFUIC

These two functions are used to find a single Social Security Number in the OMF or a single UIC in the Billet File. They both use the "bracket and half" technique for localization, that is they take advantage of the fact that the elements of interest are in numerical order and therefore look at the

last file, with the highest number, and if that is not the number they are looking for they check the middle file. If the number is greater than the middle number, they half the number of lines between the middle number and the highest number and continue that procedure for 10 iterations. Ten iterations reduce the number of records to less than 25 and logical matching is used to identify the SSN or UIC in question. The SSN function returns its single result at this point, but the UIC function may have found many billets with the same UIC and must identify and return all of them.

5. CLEARSCREEN

Function Clearscreen utilizes the APL Auxiliary Processor 100 to call the CMS Library Function "APFNS ('clrscrn')." It does exactly what the name implies and permits the next line to start at the top of the screen.

6. CMSCREAD

This function is used by the BRACKETNHALF routines to read the CMS data files. It utilizes the 100 APL Auxiliary Processor to accomplish this and can read up to 180 lines of a file at a time depending on the width of the file.

7. COGSECURITY

This function is used to check the COG code an operator reports when he signs on with the COG code of the billet on which he is attempting to operate. If there is a mismatch, the function will report it and the operator will be forced off the system.

8. COMMAND

The COMMAND function uses both the BABS1 and Billet File data bases to present a picture of a command's manning situation similar to the slates which the placement officers now use. COMMAND uses CMSCREAD and logic similar to SCREENALLOW, described below, to generate a list of billets for the specified UIC. It searches through the BABS1 File by reading 85 lines of the CMS file at a time into the APL workspace, looking for the UIC if interest, saving those billets with the correct UIC, and then looking at the next 85 lines. The number 85 was the largest number of lines the Auxiliary Processor would treat. The search is not particularly efficient, but it was the best the technology would allow.

9. FILESIZE

The FILESIZE function uses the return codes of the 110 Auxiliary Processor to determine the length of a file. This information is used by the BRACKETNHALF routines to determine the index of the last line to begin their search.

10. INSERT3

This function inserts a line of data in order into an extant list of data. It is used to place a newly available officer's record in the list of records of available officers in order of their availability date.

11. ASSIGN1

This is the function which makes the proposal for the detailer. It takes inputs from the detailer, culls the list of posted billets for the billets which meet the detailer's specifications, presents a choice of proposals to the detailer, and after he has made his decision, sends the proposal over to the placement officer who is responsible for the billet.

12. MAKEAVAIL

Function MAKEAVAIL is the controlling function in making an officer available for transfer. It prompts the placement officer for the year and month in which the officer is available and the officer's SSN then uses BRACKETNHALFSSN, COGSECURITY, and INSERT3 to place the officer's record in the correct files.

13. POST

This is the routine which permits the placement officer to post a billet. It requires an input of UIC, BSC, Required Fill Date, and the AOC with which it is to be posted.

14. The SCREEN Functions

There are a series of SCREEN functions which permit the operator to view various files that reflect the status of the assignments in which he is interested. SCREENALLOW permits the placement officer to see the allowance lists of a given UIC. SCREENAVAILS shows the detailer the list of available officers in his AOC. SCREENMADEAVAILS generates a

list of the officers a placement officer has made available for transfer. SCREENPOSTED does a similar function for the billets which a placement officer has posted. SCREENPOSTINGS shows the detailer the billets which have been posted to his parent (single digit) AOC. Finally, SCREENRECORD is the function which permits the detailer to view the record of a particular officer.

15. Minor Functions

There are two minor functions which are used: LINE, which generates a line, and SKIP which skips a space. They are both used in formatting the output on the screen.

D. GLOBAL VARIABLES

1. General

Each of the variables is a character matrix which stores the information its name implies. A generalized list is shown in Figure 33. They were initialized as (0,x) reshapes of ' ', where x is the number of columns in the array.

AVAILXX	MADEAVAILXX
POSTINGSXX	POSTEDXX
PROPOSALSXX	PRPOPSEDXX
BODIES	BILLETS

Figure 33. Global Variables

2. AVAILXX

There is one AVAILXX for each detailer. They contain the file of officers who have been made available for transfer and who are the responsibility of AOC "XX".

3. POSTINGSX

This file contains the list of posted billets for a particular office. Since the offices have a common first digit AOC code, only one number is needed to identify which office.

4. PROPOSALSXX

The variable PROPOSALXX is the list of officers who have been proposed for assignment. It is specific to a particular detailing desk.

E. MADEAVAILXX

MADEAVAILXX is a file of the officers which the placement officer with COG "XX" has made available for transfer.

1. POSTEDXX

The variable POSTEDXX contains the file of posted billets for the placement officer with COG code of "XX".

2. PROPOSEDXX

This file contains the placement officers list of pending proposals. A proposal is erased in this list if the placement officer rejects it and is retained until the OMF is updated if the proposal is accepted.

3. BILLETS and BODIES

These two global variables are used to identify the name of the CMS data file which is to be used by CMSCREAD. Usually BODIES is the OMF extract and BILLETS is the Billet File extract.

APPENDIX B

MODEL INITIATION PROCEDURES

This appendix will describe the procedures used at the Naval Postgraduate School's W.R. Church Computer Center to run the model. The reader is referred to Appendix A for the specifics of the installation at that Computer Center. The procedure will involve moving the desired files from Mass Storage Volumes to an accessable daily usage volume and then to temporary disk space. The APL work space which contains the model is also copied onto this temporary space and the disk is designated as an "A" disk. At this point the model is ready to run.

Figure 34 shows the Job Control Language (JCL) required to move the three files: the Billet File Extract (BILFIL), the Officer Master File Extract (BODFIL), and the Billets and Bodies File Extract (BABS1), from their Mass Storage repositories to the Mass Storage Daily interface disk, MVS004. The JCL takes advantage of the fact that the files are cataloged and therefore no address is necessary for the computer to find the records in Mass Storage. This step is required every day the model is used since it is the policy of the Computer Center to erase MVS004 every day between midnight and six AM.

```
//TGR2 JOB (1648,0552),'RUSSELL SMC2501',CLASS=A
//   EXEC PGM=IEBGENER
//*
//* TO TRANSFER BILLET DATA FROM MSS TO MVS004
//*          FOR TEMPORARY ACCESS
//*
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DISP=SHR,DSN=MSS.S1648.BILFIL
//SYSUT2 DD UNIT=3350,VOL=SER=MVS004,DISP=(NEW,KEEP),
//   SPACE=(CYL,(8,1)),DSN=S1648.BILFIL,
//   DCB=(RECFM=FB,LRECL=278,BLKSIZE=6394)
//SYSIN DD DUMMY
//   EXEC PGM=IEBGENER
//*
//* TO TRANSFER BODY DATA FROM MSS TO MVS004
//*          FOR TEMPORARY ACCESS
//*
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DISP=SHR,DSN=MSS.S1648.BODFIL
//SYSUT2 DD UNIT=3350,VOL=SER=MVS004,DISP=(,KEEP),
//   SPACE=(CYL,(8,1)),DSN=S1648.BODFIL,
//   DCB=(RECFM=FB,LRECL=583,BLKSIZE=5830)
//SYSIN DD DUMMY
//   EXEC PGM=IEBGENER
//*
//* TO TRANSFER BABS DATA FROM MSS TO MVS004
//*          FOR TEMPORARY ACCESS
//*
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DISP=SHR,DSN=MSS.S1648.BABS1
//SYSUT2 DD UNIT=3350,VOL=SER=MVS004,DISP=(NEW,KEEP),
//   SPACE=(CYL,(16,16)),DSN=S1648.BABS1,
//   DCB=(RECFM=FB,LRECL=162,BLKSIZE=8910)
//SYSIN DD DUMMY
/*
//
```

Figure 34. JCL Program "TOMVS004"

Once the files reside on MVS004 the executive routine THESIS1 (Figure 35) can be run. This program requests and formats (prepares) forty 3350 temporary disks, copies the data files on to this space from MVS004, copies the APL Workspace containing the model (THESIS2) and designates the entire disk an "A" disk and the 191 disk which was the "A" disk as a "B" disk. The operator must enter the APL mode by typing "APL", copy or load the workspace by typing either ")COPY THESIS2" or ")LOAD THESIS2" and the model is ready to run.

```
&TRACE
&ERROR &GOTO -END
CP DEFINE T3350 199 80
&ERROR &GOTO -DET
&BEGSTACK 2
YES
RUSSELL
FORMAT 199 C
CP LINK MVS 36B 36B RR
&DISKID = D
ACC 36B &DISKID
FILEDEF INMOVE &DISKID DSN S1648 BABS1
FILEDEF OUTMOVE DISK BABS1 VMAPL3F C
MOVE
FILEDEF INMOVE &DISKID DSN S1648 BILFIL
FILEDEF OUTMOVE DISK BILFIL VMAPL3F C
MOVE
FILEDEF INMOVE &DISKID DSN S1648 BODFIL
FILEDEF OUTMOVE DISK BODFIL VMAPL3F C
MOVE
RELEASE 36B (DET
COPYFILE THESIS2 VSAPLWS A = = C
COPYFILE BODTEST VMAPL3F A = = C
COPYFILE BILTEST VMAPL3F A = = C
COPYFILE THESIS1 EXEC A = = C
ACCESS 199 A
ACCESS 191 B
&EXIT
-DET
CP DETACH 199
ACCESS 191 A
-END
&PRINT **ERROR DETECTED. DISK RESTORED. PROGRAM EXITED.**
&EXIT
```

Figure 35. Executive Routine THESIS1

APPENDIX C

APL PROGRAMS

```
      ∇ SSN BRACKETNHALFSSN FNAME;J;JLAST;JM1;X;ITERATION;I;
        JL;JU
[1]   ⍝THIS FUNCTION SEARCHES FOR AN SSN BY THE BRACKET-AND-H
      ALF TECHNIQUE FOR 10 STEPS THEN DOES A SEQUENTIAL SEAR
      CH.
[2]   ⍝INPUTS: FNAME, SSN
[3]   ⍝FUNCTIONS USED: FILESIZE, CMSCREAD
[4]   ⍝OUTPUT: Z
[5]    JL←1
[6]    ITERATION←I←FLAG←0
[7]    FILESIZE FNAME
[8]    JU←J←FILELENGTH
[9]   LOOP:→E1×⍳J>FILELENGTH
[10]   Z←(J,1,1) CMSCREAD FNAME
[11]   ITERATION←ITERATION+1
[12]   →L1×⍳(⍎SSN)=⍎9↑Z
[13]   →L2×⍳(⍎SSN)<⍎9↑Z
[14]   →L3
[15]  L1:Z←583⍴Z
[16]   →L4
[17]  L2:→L2A×⍳FLAG≠3
[18]   JU←JL
[19]   JL←JOLD
[20]  L2A:J←(JU⌈JL)-|⌊(JU-JL)÷2
[21]   JL←JU⌊JL
[22]   JOLD←JU
[23]   JU←J
[24]   FLAG←2
[25]   →L4×⍳JU=JL
[26]   →LOOP×⍳ITERATION≤10
[27]   →L4
[28]  L3:→L3A×⍳FLAG≠2
[29]   JL←JU
```

```
[30]  JU←JOLD
[31] L3A:J←(JU⌈JL)-⌊(JU-JL)÷2
[32]  JU←JU⌈JL
[33]  JOLD←JL
[34]  FLAG←3
[35]  JL←J
[36]  →L4×⍳JU=JL
[37]  →LOOP×⍳ITERATION≤10
[38] L4:Z←(J,1,1) CMSCREAD FNAME
[39]  →L5×⍳(⍎SSN)=⍎9↑Z
[40]  →L4A×⍳(⍎SSN)<⍎9↑Z
[41]  →L4B×⍳FLAG=3
[42]  JL←JU
[43]  JU←JOLD
[44]  →L4B
[45] L4A:→L4B×⍳FLAG=2
[46]  JU←JL
[47]  JL←JOLD
[48] L4B:Z←(X,583)⍴(JL,1,(X←1+⌊JU-JL)) CMSCREAD FNAME
[49]  FLAG←4
[50]  I←0⌈+/(⍳1↑⍴Z)×(⍎9↑SSN)=⍎,(K,10)↑((K←1↑⍴Z),9)↑Z
[51]  →E1×⍳I=0
[52]  Z←Z[I;]
[53] L5:Z←583↑Z
[54]  →0
[55] E1:('***SSN ',▼SSN),' NOT FOUND.  PLEASE VERIFY SSN AND
       START OVER.***'
[56]  FLAG←9
      ∇
      .
```

```
      ∇ ASSIGN1;SSN;T1;T2;T3;T4;T5;T6;T7;T;B;D;G;AQ1;SS;ANS;
        COG;AOC;BSC;UIC;RGRADE;RDESIG;RAQD;RSUBSP;UICBSC;PRO
        P;MATCH
[1]   ⍝THIS FUNCTION PERMITS THE DETAILER TO SPECIFY SPECIFIC
       TRAITS AND SCREEN THE LIST OF AVAILABLE BILLETS FOR J
      OBS CONTAINING THEM.
[2]   ⍝INPUT:
[3]   ⍝FUNCTIONS USED: CLEARSCREEN, BRACKETNHALFSSN
[4]   ⍝OUTPUT:
[5]    CLEARSCREEN
[6]    'THIS PROGRAM WILL CULL THE LIST OF POSTED BILLETS FOR
       ONES WHICH HAVE'
[7]    'THE PREREQUISITE QUALIFICATIONS YOU SPECIFY.'
[8]    SKIP
[9]   L1:'ENTER THE 9 DIGIT SSN OF THE OFFICER YOU WANT TO AS
      SIGN.'
[10]   →E1×⍳0≠+/(9⍴' ')=9↑SSN←⍞
[11]   →E1×⍳9>⍴SSN
[12]   SSN BRACKETNHALFSSN BODY
[13]  L1A1:CLEARSCREEN
[14]   T1←((((('NAME: ',(¯27↑36↑Z)),(10⍴' ')),'SSN: '),9↑Z),'
           YG/AOC: '
[15]   ⎕←T1←((T1,¯2↑39↑Z),'/'),AOC←¯2↑56↑Z
[16]   SKIP
[17]   T2←(((('DESIGNATOR/RANK: ',(¯4↑44↑Z)),'/'),(¯1↑37↑Z)),
      10⍴' '
[18]   T2←((((T2,'SUBSPECIALITIES: (1) '),(¯5↑84↑Z)),' (2) ')
      ,(¯5↑89↑Z)),' (3) '
[19]   ⎕←T2←T2,¯5↑94↑Z
[20]   SKIP
[21]   ⎕←T3←'AQD''S: ',72⍴(12,6)↑ 12 5 ⍴¯60↑535↑Z
[22]   LINE
[23]   T← 6 79 ⍴(((((79↑T1),(79⍴' ')),(79↑T2)),(79⍴' ')),(79↑
      T3)),79⍴' '
[24]   'QUALIFICATIONS: (ENTER ''0'' IF NONE IS TO BE SPECIFI
      ED.)'
[25]   'IF YOU WANT TO LIMIT THE SEARCH TO A SPECIFIC DESIGNA
      TOR, ENTER THE FOUR'
[26]   'DIGIT DESIGNATOR (NOTE: ONLY THE FIRST 3 DIGITS ARE U
      SED).'
[27]   RDESIG←3↑⍞⍞
[28]   CLEARSCREEN
[29]   T
[30]   'IF YOU WANT BILLETS ONLY OF A CERTAIN GRADE, ENTER TH
      E SINGLE LETTER '
[31]   'CODE CORRESPONDING TO THAT RANK.'
[32]   '     L = ENSIGN                          G = CAPTAIN'
[33]   '     K = LTJG                           F = COMMODORE'
```

```
[34]   '     J = LIEUTENANT                    E = REAR ADMIRAL
       '
[35]   '     I = LIEUTENANT COMMANDER          D = VICE ADMIRAL
       '
[36]   '     H = COMMANDER                     C = ADMIRAL '
[37]   RGRADE←1↑⍞
[38]   CLEARSCREEN
[39]   T
[40]   'IF YOU WANT TO CONSIDER ONLY BILLETS WITH A CERTAIN A
       QD, ENTER THAT '
[41]   'SINGLE THREE CHARACTER AQD:'
[42]   RAQD←3↑⍞
[43]   CLEARSCREEN
[44]   T
[45]   'IF YOU WANT TO INCLUDE ONLY BILLETS OF A SPECIFIC SUB
       SPECIALITY, ENTER'
[46]   'THE TWO DIGITS WHICH SPECIFY THAT SUBSPECIALITY.'
[47]   RSUBSP←2↑⍞
[48]   Y←'POSTINGS',1↑AOC
[49]   B←1↑⍴⎕Y
[50]   →L1A×⍳'0'=1↑RDESIG
[51]   D←(⍳B)×3=+/((B,3)⍴RDESIG)=(B,¯3)↑(B,91)↑⎕Y
[52]   →L2
[53] L1A:D←⍳B
[54] L2:→L2A×⍳'0'=1↑RGRADE
[55]   G←(⍳B)×,((B,1)⍴RGRADE)=(B,¯1)↑(B,93)↑⎕Y
[56]   →L3
[57] L2A:G←⍳B
[58] L3:→L3A×⍳'0'=1↑RAQD
[59]   AQ1←(⍳B)×(3=+/((B,3)⍴RAQD)=(B,¯3)↑(B,96)↑⎕Y)
[60]   →L4
[61] L3A:AQ1←⍳B
[62] L4:→L4A×⍳'0'=1↑RSUBSP
[63]   SS←(⍳B)×(2=+/(((B,2)⍴RSUBSP)=(B,¯2)↑(B,156)↑⎕Y))∨2=+/(
       (B,2)⍴RSUBSP)=(B,¯2)↑(B,161)↑⎕Y
[64]   →L5
[65] L4A:SS←⍳B
[66] L5:MATCH←(⎕Y)[(0≠T1)/T1←(⍳B)×(⍳B)=(D+G+AQ1+SS)÷4;]
[67] L6:CLEARSCREEN
[68]   'THE FOLLOWING POSTED BILLETS MATCH THE CHARACTERISTIC
       S YOU HAVE SPECIFIED.'
```

```
[69]  LINE
[70]  T7←(((('REQD  UIC     COMMAND',(10ρ' ')),'BSC   BILLET')
      ,(34ρ' ')),'COG'
[71]  →L61×ι0≠1↑ρMATCH
[72]  'NO MATCHES'
[73] L61:B←1↑ρMATCH
[74]  T4←((((B,4)↑MATCH),((B,2)ρ' ')),((B,¯5)↑(B,9)↑MATCH)),
      ((B,2)ρ' ')
[75]  T4←((T4,((B,¯16)↑(B,70)↑MATCH)),((B,1)ρ' ')),((B,¯5)↑(
      B,14)↑MATCH)
[76]  □←T4←(((T4,((B,1)ρ' ')),((B,¯40)↑(B,152)↑MATCH)),((B,1
      )ρ' ')),(B,¯2)↑MATCH
[77] L7:LINE
[78]  'IF NONE OF THE BILLETS LISTED ABOVE ARE SATISFACTORY,
       ENTER THE LETTER''N'' AND'
[79]  'THE PROGRAM WILL RECYCLE AND PERMIT YOU TO CHANGE THE
       PARAMETERS WHICH'
[80]  'GENERATED THE LIST.'
[81]  'IF YOU SEE THE BILLET YOU WANT, ENTER ''C'' TO CONTIN
      UE AND PROPOSE YOUR OFFICER.'
[82]  'ENTER ''0'' TO EXIT THIS FUNCTION.'
[83]  →E2×ι(ANS≠'N')∧(ANS≠'C')∧('0'≠ANS←1↑⍞)
[84]  →0×ι'0'=ANS
[85]  →L1A1×ι'N'=ANS
[86]  CLEARSCREEN
[87] L11:T7
[88]  T4
[89]  LINE
[90] L8:'ENTER THE UIC OF THE COMMAND OF THE BILLET AGAINST
      WHICH YOU'
[91]  'WANT TO PROPOSE YOUR OFFICER.'
[92]  →E3×ι0≠+/(5ρ' ')=5↑UIC←⍞
[93]  →E3×ι5>ρUIC
[94] L9:'ENTER THE BSC OF THE BILLET.'
[95]  →E4×ι0≠+/(5ρ' ')=5↑BSC←⍞
[96]  →E4×ι5>ρBSC
[97] L10:CLEARSCREEN
[98] L12:SKIP
```

```
[99]  UICBSC←UIC,BSC
[100]  T5←((B,¯5)↑(B,11)↑T4),(B,¯5)↑((B←1↑ρT4),35)↑T4
[101]  T6←+/(⍳B)×10=(+/((B,10)ρUICBSC)=T5)
[102]  →E10×⍳T6≤0
[103]  →E10×⍳T6>1↑ρT4
[104]  'YOU HAVE CHOSEN THIS BILLET AGAINST WHICH TO PROPOSE
        YOUR OFFICER:'
[105]  'BILLET'
[106]  □←T7←¯73↑T4[T6;]
[107]  SKIP
[108]  LINE
[109]  'OFFICER:'
[110]  SKIP
[111]  T
[112]  'THIS IS A CONFIRMATION CHECK.'
[113]  SKIP
[114]  'IF THE ABOVE IS CORRECT, ENTER ''C'' TO CONTINUE.'
[115]  'IF IT IS IN ERROR, ENTER ''N'' AND THE PROGRAM WILL
       RECYCLE.'
[116]  →E5×⍳(ANS≠'C')∧'N'≠ANS←1↑⍞
[117]  P←'P'
[118]  ⍎'POSTINGS',(1↑AOC),'[(T2←((0≠T1)/T1)[T6]);280]←P'
[119]  PROP←((((1 79 ρT[1;]),[1] T[3;]),[1] T[5;]),[1] 79↑T7
       ),[1] 79ρ' '
[120]  COG←¯2↑T7
[121]  Y←'PROPOSED',▼COG
[122]  ⍎Y,'←',Y,',[1]PROP'
[123]  CLEARSCREEN
[124]  'THE FOLLOWING HAS BEEN PROPOSED TO ',▼COG
[125]  PROP
[126]  Y←'PROPOSALS',▼AOC
[127]  ⍎Y,'←',Y,',[1]PROP'
[128]  →0
[129] E1:'SSN INPUT ERROR. TRY AGAIN.'
[130]  →L1
[131] E2:'ANSWER NOT RECOGNIZED. PLEASE REENTER.'
[132]  →L7
[133] E3:'INVALID UIC. PLEASE REENTER'
[134]  →L8
[135] E4:'INVALID BSC. PLEASE REENTER'
[136]  →L9
[137] E5:'RESPONSE NOT RECOGNIZED. PLEASE REENTER.'
[138]  CLEARSCREEN
[139]  →L12
[140] E10:'INPUT ERROR.  TRY AGAIN.'
[141]  LINE
[142]  →L11
      ∇
      .
```

```
      ∇ UIC BRACKETNHALFUIC FNAME;J;JL;JU;JM1;X;ITERATION;I;
        FILELENGTH;JHI;JLO
[1]   ⍝THIS FUNCTION SEARCHES FOR A UIC BY THE BRACKET-AND-HA
      LF TECHNIQUE FOR 10 STEPS THEN DOES A SEQUENTIAL SEARC
      H.
[2]   ⍝WHEN THE UIC IS FOUND IT DETERMINES THE NUMBER OF ENTR
      IES AND RETURNS A MATRIX WITH ALL ENTRIES WITH THAT UI
      C.
[3]   ⍝INPUTS: UIC, FNAME
[4]   ⍝FUNCTIONS USED: FILESIZE, CMSCREAD
[5]   ⍝OUTPUT: Z
[6]    JL←1
[7]    ITERATION←I←X←FLAG←0
[8]    FILESIZE FNAME
[9]    JU←J←FILELENGTH
[10] LOOP:→E1×⍳J>FILELENGTH
[11]   Z←(J,1,1) CMSCREAD FNAME
[12]   ITERATION←ITERATION+1
[13]   →L1×⍳(⍎UIC)=⍎5↑Z
[14]   →L2×⍳(⍎UIC)<⍎5↑Z
[15]   →L3
[16] L1:Z←287⍴Z
[17]   I←0
[18]   →L5
[19] L2:→L2A×⍳FLAG≠3
[20]   JU←JL
[21]   JL←JOLD
[22] L2A:J←(JU⌈JL)-⌊(JU-JL)÷2
[23]   JL←JU⌊JL
[24]   JOLD←JU
[25]   JU←J
[26]   FLAG←2
[27]   →L4×⍳JU=JL
[28]   →LOOP×⍳ITERATION≤10
[29]   →L4
[30] L3:→L3A×⍳FLAG≠2
[31]   JL←JU
[32]   JU←JOLD
[33] L3A:J←(JU⌈JL)-⌊(JU-JL)÷2
[34]   JU←JU⌈JL
[35]   JOLD←JL
[36]   FLAG←3
```

```
[37]  JL←J
[38]  →L4×⍳JU=JL
[39]  →LOOP×⍳ITERATION≤10
[40] L4:
[41]  Z←(J,1,1) CMSCREAD FNAME
[42]  →L1×⍳(⍎UIC)=⍎5↑Z
[43]  →L4A×⍳(⍎UIC)<⍎5↑Z
[44]  →L4B×⍳FLAG=3
[45]  JL←JU
[46]  JU←JOLD
[47]  →L4B
[48] L4A:→L4B×⍳FLAG=2
[49]  JU←JL
[50]  JL←JOLD
[51] L4B:Z←(X,278)⍴(JL,1,(X←1+|JU-JL)) CMSCREAD FNAME
[52]  FLAG←4
[53] L41:I←0⌈+/(⍳K)×(⍎5↑UIC)=⍎,(K,6)↑((K←1↑⍴Z),5)↑Z
[54]  →E1×⍳I=0
[55]  Z←Z[I;]
[56] L5:Z←583⍴Z
[57]  →L5A×⍳FLAG≠4
[58]  I←I-1
[59] L5A:JLO←JHI←J+I
[60] L51:JLO←JLO-1
[61]  →L51A×⍳JLO≤0
[62]  Z←(JLO,1,1) CMSCREAD FNAME
[63]  →L51×⍳(⍎UIC)=⍎5↑Z
[64] L51A:JLO←JLO+1
[65] L52:JHI←JHI+1
[66]  →L53×⍳JHI≥FILELENGTH
[67]  Z←(JHI,1,1) CMSCREAD FNAME
[68]  →L52×⍳(⍎UIC)=⍎5↑Z
[69] L53:X←JHI-JLO
[70]  Z←(JLO,1,X) CMSCREAD FNAME
[71]  →0
[72] E1:('UIC ',⍕UIC),' NOT FOUND.  PLEASE VERIFY UIC AND ST
      ART OVER.'
[73]  FLAG←9
      ∇
      .
```

```
      ∇ SKIP
[1]   1 79 ρ' '
      ∇
      .
```

```
      ∇ LINE
[1]   79ρ'_'
      ∇
      .
```

```
      ∇ CLEARSCREEN;Y
[1]   ⍝THIS FUNCTION CLEARS THE SCREEN
[2]   ⍝INPUT: NONE
[3]   ⍝FUNCTIONS USED: NONE
[4]   ⍝OUTPUT: CLEAR SCREEN
[5]    100 ⎕SVO 'Y'
[6]    Y←'CLRSCRN'
      ∇
      .
```

```
      ∇ DATA←X CMSCREAD FNAME;REC;CTL;RC;A
[1]   ⍝THIS FUNCTION READS A CMS DATA FILE WITH FILE TYPE VMA
      PL3F
[2]   ⍝INPUT: FNAME, X (MAY BE A 3-D VECTOR:X[1]←START LINE N
      UMBER;X[2]←1;X[3]← NUMBER OF LINES TO BE READ.
[3]   ⍝FUNCTIONS USED: NONE
[4]   ⍝OUTPUT:Z←DATA;RC←RETURN (ERROR) CODE [SUPRESSED]
[5]    REC←FNAME,'(370 FIX'
[6]    CTL←FNAME,' VMAPL3F(CTL'
[7]    →L2×⍳4≠+/RC←110 ⎕SVO 2 3 ⍴'RECCTL'
[8]    →L2×⍳0≠RC←REC[1]
[9]    →L2×⍳0≠RC←CTL
[10]   CTL←X
[11]   A←REC
[12]   →L2×⍳0≠RC←CTL[1]
[13]   DATA←A
[14]  L2:
[15]  ⍝⎕←RC
[16]   RC←⎕SVR 2 3 ⍴'RECCTL'
       ∇
       .
```

```
      ∇ BILCOG COGSECURITY UCOG
[1]   ⍝ THIS FUNCTION CHECKS FOR A MATCH BETWEEN THE USER COG
        AND THE COG OF THE BILLET.
[2]   ⍝INPUT: USER COG, BILLET COG
[3]   ⍝FUNCTIONS USED: CLEARSCREEN
[4]   ⍝ OUTPUT: 'OK' IF MATCH, ERROR STATEMENT AND EXIT IF NO
        MATCH.
[5]    →OK×⍳2=+/BILCOG=2↑UCOG
[6]    →OK×⍳2=+/(2↑UCOG)='1 '
[7]    ('THE COG CODE OF THIS UIC DOES NOT MATCH YOUR COG COD
       E, ',▼UCOG),'.'
[8]    'YOU ARE THEREFORE NOT AUTHORIZED ACCESS TO THIS UIC.'
[9]    FLAG←9
[10]   →0
[11]  OK:'COG SECURITY CHECK:  OK '
[12]   CLEARSCREEN
       ∇
       .
```

```
     ∇ COMMAND;UIC;ITER;LBITE;J;X;Z;T;T1;T2;T3;T4;T5;T6;IX
[1]  ⍝PURPOSE: TO SCREEN THE BILLETS AND PERSONNEL FOR A SPE
      CIFIED UIC
[2]  ⍝INPUT: UIC, USES DATA FILES BABS1 AND BILLET FILE EXTR
      ACT BILLET
[3]  ⍝FUNCTIONS USED:CLEARSCREEN, LINE, CMSCREAD, FILESIZE
[4]  OUTPUT:DISPLAYS BILLETS AND PERSONNEL FOR UIC SPECIFIED
      CLEARSCREEN
[5]  L1:'ENTER THE UIC OF THE ACTIVITY OF INTEREST.'
[6]   →E1×⍳0≠+/(5⍴' ')=5↑UIC←⍞
[7]   →E1×⍳5>⍴UIC
[8]   FILESIZE 'BABS1'
[9]   ITER←⌊FILELENGTH÷85
[10]  LBITE←FILELENGTH-85×ITER
[11]  J←1
[12]  X←(0,162)⍴' '
[13] LOOP:→L5×⍳J≥FILELENGTH+1-LBITE
[14]  Z←(J,1,85) CMSCREAD 'BABS1'
[15]  J←J+85
[16]  T←(⍳85)×5=+/(85 5 ⍴UIC)=(85 ¯5)↑(85 162)↑Z
[17]  →L4×⍳0=+/T
[18]  T←(0≠T)/T
[19]  X←X,[1] Z[T;]
[20] L4:→LOOP
[21] L5:→L6×⍳0=1↑⍴X
[22]  Z←(J,1,LBITE) CMSCREAD 'BABS1'
[23]  T←(⍳LBITE)×5=+/((LBITE,5)⍴UIC)=(LBITE,¯5)↑(LBITE,157)↑
      Z
[24]  →L6×⍳0=+/T
[25]  T←(0≠T)/T
[26]  X←X,[1] Z[T;]
[27] L6:→E2×⍳0=1↑⍴X
[28]  INDEX←⍋⍋,(T1,6)↑(T1,¯5)↑((T1←1↑⍴X),39)↑X
[29]  CLEARSCREEN
```

```
[31]  T1←(((('COMMAND: ',(¯16↑27↑X[1;])),(5ρ' ')),'UIC: '),¯5
      ↑157↑X[1;]
[32]  T1←((T1,(5ρ' ')),'HOMEPORT: '),¯6↑33↑X[1;]
[33]  X←X[INDEX;]
[34]  UIC BRACKETNHALFUIC BILLET
[35] L10:→L11×ι2=ρρZ
[36]  Z← 1 278 ρZ
[37] L11:J←1↑ρZ
[38]  T2←((((J,¯5)↑(J,10)↑Z),(J,3)ρ' '),(J,¯40)↑(J,148)↑Z),(
      J,2)ρ' '
[39]  T2←((T2,(J,¯4)↑(J,88)↑Z),(J,2)ρ' '),(J,¯1)↑(J,89)↑Z
[40]  T2←(J,62)↑T2
[41]  IX←1↑ρX
[42]  T3←((((IX,1)↑X),T4),((IX,¯9)↑(IX,150)↑X)),T4←(IX,1)ρ
      ' '
[43]  T3←((T3,[2]((IX,¯19)↑(IX,99)↑X)),T4),(IX,¯4)↑(IX,103)↑
      X
[44]  T3←((T3,[2](T5←(IX,1)ρ'/')),((IX,¯1)↑(IX,104)↑X)),T4
[45]  T3←((T3,[2]((IX,¯2)↑(IX,125)↑X)),T5),(IX,¯2)↑(IX,152)↑
      X
[46]  T3←(((T3,[2] T4),((IX,¯4)↑(IX,136)↑X)),T4),(IX,¯6)↑(IX
      ,132)↑X
[47]  T3←(T3,[2] T4),(IX,¯5)↑(IX,141)↑X
[48]  T4←(((IT2←1↑ρT2),5)↑T2),[1](IX,¯5)↑(IX,39)↑X
[49]  T1
[50]  LINE
[51]  SKIP
[52]  □←T6←(T2,[1] T3)[⍋⍷,((IX+IT2),6)↑T4;]
[53]  →0
[54] E1:'INPUT ERROR. PLEASE REENTER THE FIVE DIGIT UIC'
[55]  →A1
[56] E2:'NO LIEUTENANTS OR BELOW ASSIGNED TO THAT UIC'
[57]  →0
      ∇
      .
```

```
      ∇ DMENU;ACTION
[1]   ⍝THIS FUNCTION PROVIDES A MENU FROM WHICH A DETAILER MA
      Y CHOOSE AN ACTION.
[2]   ⍝INPUT:NONE
[3]   ⍝FUNCTIONS USED: CLEARSCREEN, SCREENRECORD, SCREENAVAIL
      S, ASSIGN1, SCREENPOSTINGS, LINE
[4]   ⍝OUTPUT: CALLS APPROPRIATE FUNCTION.
[5]   L1:CLEARSCREEN
[6]    (26⍴' '),'ASSIGNMENT OFFICER (DETAILER)'
[7]    (34⍴' '),'ACTION MENU'
[8]    ' '
[9]    ' '
[10]   (((3⍴' '),'ENTRY'),4⍴' '),'DESCRIPTION'
[11]   79⍴'_'
[12]   (((5⍴' '),'0.'),5⍴' '),'END THE SESSION'
[13]   (((5⍴' '),'1.'),5⍴' '),'REVIEW AN OFFICER''S RECORD'
[14]   (((5⍴' '),'2.'),5⍴' '),'REVIEW THE LIST OF AVAILABLE O
       FFICERS'
[15]   (((5⍴' '),'3.'),5⍴' '),'PROPOSE A SPECIFIC OFFICER'
[16]   (((5⍴' '),'4.'),5⍴' '),'REVIEW THE FILE OF PROPOSED OF
       FICERS'
[17]   (((5⍴' '),'5.'),5⍴' '),'REVIEW BILLETS WHICH ARE AVAIL
       ABLE'
[18]   ' '
[19]   ' '
[20]  L2:'ENTER THE NUMBER CORRESPONDING TO THE ACTION DESIRE
       D.'
[21]   ACTION←⍞
[22]   CLEARSCREEN
[23]   →A0×⍳0=1↑ACTION
[24]   →A1×⍳1=1↑ACTION
[25]   →A2×⍳2=1↑ACTION
[26]   →A3×⍳3=1↑ACTION
[27]   →A4×⍳4=1↑ACTION
[28]   →A5×⍳5=1↑ACTION
[29]   →E1
[30]  E1:'INPUT ERROR. TRY AGAIN'
[31]   →L2
```

```
[32] A0:→0
[33] A1:SCREENRECORD
[34]  →A10
[35] A2:SCREENAVAILS
[36]  →A10
[37] A3:ASSIGN1
[38]  →A10
[39] A4:SCREENPROPOSALS
[40]  →A10
[41] A5:SCREENPOSTINGS
[42]  →A10
[43] A10:LINE
[44]  'DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)'
[45]  →L1×⍳'Y'=1↑⍞
      ∇
      .
```

```
      ∇ FILESIZE FNAME;CTL;REC;RC
[1]   ⍝THIS FUNCTION DETERMINES THE LENGTH OF A CMS DATA
FILE
        WITH FILE TYPE:VMAPL3F.
[2]   ⍝INPUT:FNAME
[3]   ⍝FUNCTIONS USED: NONE
[4]   ⍝OUTPUT: FILELENGTH
[5]    REC←FNAME,'(370 FIX'
[6]    CTL←FNAME,' VMAPL3F(CTL'
[7]    RC←110 ⎕SVO 2 3 ⍴'RECCTL'
[8]    FILELENGTH←¯1+¯1↑3↑REC
[9]    RC←⎕SVR 2 3 ⍴'RECCTL'
       ∇
       .
```

```
      ∇ GO;I;TYPE;UAOC;UCOG;FLAG;FNAME;FILELENGTH;Y;Z;JOLD
[1]   ⍝THIS FUNCTION INITIATES THE SERIES OF FUNCTIONS
 BY DIV
      IDING PLACEMENT FROM DETAILER AND CALLING THE A
PPROPRI
      ATE MENU.
[2]   ⍝INPUT: AOC OR COG (PROMPTED)
[3]   ⍝FUNCTIONS USED: DMENU, PMENU,CLEARSCREEN
[4]   ⍝OUTPUT: UAOC OR UCOG
[5]    I←FLAG←0
[6]    CLEARSCREEN
[7]   L1:I←I+1
[8]    'IF YOU ARE A DETAILER ENTER THE LETTER: D'
[9]    'IF YOU ARE A PLACEMENT OFFICER ENTER THE LETTER
: P'
[10]   TYPE←⍞
[11]   →DETAIL×⍳'D'=1↑TYPE
[12]   →PLACEMENT×⍳'P'=1↑TYPE
[13]   →E11×⍳3≤I
[14]   'INPUT ERROR.  PLEASE TRY AGAIN'
[15]   →L1
[16]  E11:'THREE STRIKES AND YOU ARE OUT'
[17]   →0
[18]  DETAIL:'ENTER YOUR ASSIGNMENT OFFICER CODE (AOC)'
[19]   UAOC←⍞
[20]   →E1×⍳2=+/'  '=2↑UAOC
[21]   →E1×⍳(1=+/'  '=2↑UAOC)∧(1≠⌷2↑UAOC)
[22]   →E1×⍳(2≠⍴UAOC)∧(1≠⌷2↑UAOC)
[23]   DMENU
[24]   →0
[25]  PLACEMENT:'ENTER YOUR PLACEMENT COG CODE'
[26]   UCOG←⍞
[27]   →E2×⍳2=+/'  '=2↑UCOG
[28]   →E2×⍳(1=+/'  '=2↑UCOG)∧(1≠⌷2↑UCOG)
[29]   →E2×⍳(2≠⍴UCOG)∧(1≠⌷2↑UCOG)
[30]   PMENU
[31]   →0
[32]  E1:→E9×⍳3<I←I+1
[33]   '***INPUT ERROR.  PLEASE TRY AGAIN.'
[34]   →DETAIL
[35]  E2:→E9×⍳3<I←I+1
[36]   '***INPUT ERROR.  PLEASE TRY AGAIN.'
[37]   →PLACEMENT
[38]  E9:FLAG←9
[39]   '***TOO MANY INPUT ERRORS.  PLEASE VERIFY YOUR CODES
 A
      ND START OVER.***'
[40]   →0
       ∇
       .
```

```
     ∇ K INSERT3 J;B1
[1]  ⍝THIS FUNCTION PERMITS INSERTING A LINE OF DATA IN ORDE
     R
[2]  ⍝INPUTS:J←SIZE OF THE ARGUEMENT TO BE ORDERED;K← NUMBER
       OF ELEMENTS AHEAD OF J IN THE FILE;Y←CHARACTER MATRIX
       TO BE ORDERED.
[3]  ⍝FUNCTIONS USED: NONE
[4]  ⍝OUTPUT: CHARACTER VECTOR Y IN ORDER
[5]   →0×⍳1=1↑⍴⍎Y
[6]   ⍎Y,'←(⍎Y)[⍋⍎,(B1,(J+1))↑(B1,(-J))↑((B1←1↑⍴⍎Y),(J+K))↑⍎
     Y;]'
     ∇
     .
```

```
      ∇ MAKEAVAIL;SSN;AOC;I;Y;FNAME;YYMMAVAIL;T;A;B;K
[1]   ⍝ THIS FUNCTION LETS A PLACEMENT OFFICER MAKES AN OFFIC
       ER AVAILABLE TO A DETAILER.
[2]   ⍝INPUTS: SSN(PROMPTED),FNAME(PROMPTED),YYMMAVAIL(PROMPT
       ED)
[3]   ⍝FUNCTIONS USED: BRACKETNHALFSSN, COGSECURITY
[4]   ⍝OUTPUT:  Z(TO THE AVAILXX AND MADEAVAIL QUEUES)
[5]   L0:'ENTER THE SSN OF THE OFFICER YOU WANT TO MAKE AVAIL
       ABLE'
[6]    SSN←▼⍞
[7]    →E3×⍳0≠+/(9⍴' ')=9↑SSN
[8]    →E3×⍳9>⍴SSN
[9]    'ENTER THE YEAR AND MONTH IN WHICH THE OFICER WILL BE
       AVAILABLE (FORMAT:  YYMM)'
[10]  L1:YYMMAVAIL←⍞
[11]   →E1×⍳0<+/'     '=4↑YYMMAVAIL
[12]   →E1×⍳((⍎¯2↑YYMMAVAIL)>12)∨(1>(⍎¯2↑YYMMAVAIL))
[13]   →E1×⍳4≠⍴YYMMAVAIL
[14]   SSN BRACKETNHALFSSN BODY
[15]   →0×⍳FLAG=9
[16]   (¯2↑50↑Z) COGSECURITY UCOG
[17]   →0×⍳FLAG=9
[18]   AOC←¯2↑56↑Z
[19]   Z←YYMMAVAIL,Z
[20]   Y←'AVAIL',▼AOC
[21]   ⍎Y,'←',Y,',[1]Z'
[22]   0 INSERT3 4
[23]   ('THE FOLLOWING OFFICER HAS BEEN MADE AVAILABLE TO AOC
       ',▼AOC),':'
[24]   ⎕←T← 1 45 ⍴((((4↑Z),'  '),¯9↑13↑Z),'  '),¯30↑43↑Z
[25]   MADEAVAIL←MADEAVAIL,[1](T,[2] 1 4 ⍴' '), 1 2 ⍴▼AOC
[26]   Y←'MADEAVAIL'
[27]   MADEAVAIL←A[⍋⍎,(B,14)↑((B,4)↑A),(B,¯9)↑((B←1↑⍴A),15)↑A
       ←MADEAVAIL;]
[28]   →0
```

```
[29] E1:CLEARSCREEN
[30]  '***INPUT ERROR.  YOUR ENTRY WAS: ',YYMMAVAIL
[31]  'THE FORMAT REQUIRES 4 CONSECUTIVE NUMBERS (YYMM) AND
      THE MONTH CODE MUST'
[32]  'BE BETWEEN 00 AND 13.'
[33]  'EXAMPLES:     DATE         CODE'
[34]  3 30 ρ(((((14ρ' '),'JAN 82      8201'),(14ρ' ')),'DEC
      81      8112'),(14ρ' ')),'SEP 82      8209'
[35]  ' '
[36]  'REENTER THE YEAR AND MONTH THE OFFICER WILL BE AVAILA
      BLE.'
[37]  →L1
[38] E3:'***SSN INPUT ERROR.  PLEASE TRY AGAIN.***'
[39]  '(TO EXIT THIS ROUTINE ENTER: 123456789.)'
[40]  →L0
      ∇
      .
```

```
      ∇ PMENU;ACTION
[1]   ⍝THIS FUNCTION PROVIDES A MENU FROM WHICH PLACEMENT OFF
      ICERS MAY CHOOSE AN ACTION.
[2]   ⍝INPUTS: NONE
[3]   ⍝FUNCTIONS USED:CLEARSCREEN, SCREENALLOW, POST, MAKEAVA
      IL,SCREENPOSTED,SCREENMADEAVAILS
[4]   ⍝OUTPUT:  CALLS APPROPRIATE FUNCTION.
[5]   L1:CLEARSCREEN
[6]    (31⍴' '),'PLACEMENT OFFICER'
[7]    (34⍴' '),'ACTION MENU'
[8]    '  '
[9]    '  '
[10]   (3⍴' '),'ENTRY    DESCRIPTION'
[11]   79⍴'_'
[12]   (((5⍴' '),'0.'),5⍴' '),'END THE SESSION'
[13]   (((5⍴' '),'1.'),5⍴' '),'REVIEW A COMMAND''S ALLOWANCES
       '
[14]   (((5⍴' '),'2.'),5⍴' '),'REVIEW A COMMAND''S MANNING AN
       D PERSONNEL'
[15]   (((5⍴' '),'3.'),5⍴' '),'POST A BILLET'
[16]   (((5⍴' '),'4.'),5⍴' '),'MAKE AN OFFICER AVAILABLE FOR
       TRANSFER'
[17]   (((5⍴' '),'5.'),5⍴' '),'REVIEW BILLETS POSTED'
[18]   (((5⍴' '),'6.'),5⍴' '),'REVIEW OFFICERS MADE AVAILABLE
       '
[19]   (((5⍴' '),'7.'),5⍴' '),'REVIEW A PROPOSAL'
[20]   '  '
[21]   '  '
[22]   'ENTER THE NUMBER CORRESPONDING TO THE DESIRED ACTION'
[23]   ACTION←⍞
[24]   CLEARSCREEN
[25]   →A0×⍳0=1↑ACTION
[26]   →A1×⍳1=1↑ACTION
[27]   →A2×⍳2=1↑ACTION
[28]   →A3×⍳3=1↑ACTION
[29]   →A4×⍳4=1↑ACTION
[30]   →A5×⍳5=1↑ACTION
[31]   →A6×⍳6=1↑ACTION
[32]   →A7×⍳7=1↑ACTION
```

```
[33]   →E1
[34] E1:'INPUT ERROR TRY AGAIN'
[35]   →L1
[36] A0:→0
[37] A1:SCREENALLOW
[38]   →A10
[39] A2:COMMAND
[40]   →A10
[41] A3:POST
[42]   →A10
[43] A4:MAKEAVAIL
[44]   →A10
[45] A5:SCREENPOSTED
[46]   →A10
[47] A6:SCREENMADEAVAILS
[48]   →A10
[49] A7:PROP
[50]   →A10
[51] A10:79ρ'_'
[52]   ' '
[53]   'DO YOU WANT TO DO ANOTHER TRANSACTION? (Y/N)'
[54]   →L1×⍳'Y'=1↑⍞
[55]   →0
       ∇
       .
```

```
     ∇ POST;ANS;UIC;FNAME;J;T;BSC;I;AOC;Y;A;B;DATEREQD
[1]  ⍝THIS FUNCTION PERMITS A PLACEMENT OFFICER TO POST A SP
      ECIFIC BILLET WITH A SPECIFIC DETAILER OR DETAILING OF
      FICE FOR FILLING IN A
[2]  ⍝SPECIFIC MONTH.
[3]  ⍝INPUT:  UIC, FNAME, AOC, BSC (ALL PROMPTED)
[4]  ⍝FUNCTIONS USED: BRACKETNHALFUIC, CLEARSCREEN,LINE
[5]  ⍝OUTPUT: PRINTS BILLETS OF THE UIC; FILES BSC BILLET TO
       AOC'S POSTINGS AND PLACEMENT'S POSTED BILLETS.
[6]   'ENTER THE FIVE DIGIT UNIT IDENTIFICATION CODE (UIC) O
      F THE COMMAND'
[7]   UIC←⍞
[8]   UIC BRACKETNHALFUIC BILLET
[9]   →0×⍳FLAG=9
[10]  →L1×⍳2=⍴⍴Z
[11]  Z← 1 278 ⍴Z
[12] L1:J←1↑⍴Z
[13]  CLEARSCREEN
[14]  (('THE FOLLOWING BILLETS ARE ALLOWED FOR UIC ',▼UIC),'
      , '),16⍴(1,¯16)↑(1,66)↑Z
[15]  LINE
[16]  'BSC    BILLET                                        DESI
      G GRADE'
[17]  79⍴'_'
[18]  T←(((⍉(J,¯5)↑(J,10)↑Z),(J,2)⍴' '),(J,¯40)↑(J,148)↑Z),(J
      ,2)⍴' '
[19]  T←((T,(J,¯4)↑(J,88)↑Z),(J,2)⍴' '),(J,¯1)↑(J,89)↑Z
[20]  ⎕←T←(J,64)↑T
[21]  LINE
[22]  'ENTER THE BSC OF THE BILLET YOU WANT TO POST.  AN ENT
      RY OF ''0'' WILL EXIT THE PROGRAM.'
[23]  →L9×⍳5=+/'0    '=5↑BSC←⍞
[24]  →E3×⍳0≠+/(5⍴' ')=5↑BSC
[25]  →E3×⍳5≠⍴BSC
[26] L2:I←0
[27] L3:I←I+1
```

```
[28]  →E2×ιI>1↑ρZ
[29]  →L3×ι(⍎BSC)≠⍎¯5↑10↑Z[I;]
[30]  'ENTER THE AOC TO WHICH YOU WANT THIS BILLET POSTED.'
[31]  AOC←⍞
[32] L4:'ENTER THE 4 DIGIT REQUIRED FILL DATE FOR THE BILLET
       SPECIFIED(YYMM)'
[33]  DATEREQD←▼⍞
[34]  →L9×ι4=+/'0    '=4↑DATEREQD
[35]  →E1×ι(0≥⍎¯2↑DATEREQD)∨(13≤⍎¯2↑DATEREQD)
[36]  Y←'POSTINGS',▼AOC
[37]  ⍎Y,'←',Y,',[1](DATEREQD,Z[I;])'
[38]  ('THE FOLLOWING BILLET HAS BEEN POSTED TO AOC ',▼AOC),
      ':'
[39]  ⎕←((((('COMMAND: ',¯16↑66↑Z[I;]),'      UIC: '),UIC),'
           DATE REQUIRED: '),DATEREQD
[40]  ⎕←(('BILLET: ',¯40↑148↑Z[I;]),'     BSC: '),BSC
[41]  A←((((UIC,(¯16↑66↑Z[I;])),BSC),(¯40↑148↑Z[I;])),▼2↑AOC
      ),DATEREQD
[42]  Y←'POSTED',▼UCOG
[43]  ⍎Y,'←(⍎Y),[1]A'
[44]  →0×ι1=1↑ρ⍎Y
[45]  ⍎Y,'←(⍎Y)[⍋⍎,(B,11)↑((B,5)↑⍎Y),(B,¯5)↑((B←(1↑ρ⍎Y)),26)
      ↑⍎Y;]'
[46]  →0
[47] E1:'***REQUIRED FILL DATE INPUT ERROR.  YOUR ENTRY WAS:
       ',DATEREQD
[48]  'FILL DATE MUST BE A 4 DIGIT NUMBER, THE FIRST TWO IND
      ICATING THE YEAR'
[49]  'AND THE LAST TWO THE MONTH.  THE MONTH MUST BE BETWEE
      N 00 AND 13.'
[50]  'EXAMPLES:  DEC 81 = 8112, JAN 82 = 8201, ETC'
[51]  'REENTER THE REQUIRED FILL DATE (AN ENTRY OF 0000 WILL
       EXIT THE PROGRAM.'
[52]  →L4
[53] E2:'***ERROR: BSC NOT FOUND.  PLEASE VERIFY AND START O
      VER.'
[54]  →0
[55] E3:'***ERROR: BSC INPUT ERROR. PLEASE VERIFY AND START
      AGAIN.'
[56]  →0
[57] L9:FLAG←9
[58]  →0
      ∇
      .
```

```
      ∇ PROP
[1]   ⍝THIS FUNCTION PERMITS THE PLACEMENT OFFICER TO REVIEW,
        ACCEPT, OR REJECT A PROPOSAL.
[2]   ⍝INPUT: PROPOSEDXX (WHERE XX IS A PLACEMENT COG CODE)
[3]   ⍝FUNCTIONS USED: CLEARSCREEN, LINE
[4]   ⍝OUTPUT:
[5]   L0:CLEARSCREEN
[6]    →L0A×⍳2≠+/'1 '=2↑UCOG
[7]    'ENTER THE COG WHOSE PROPOSAL YOU WANT TO CHECK'
[8]    COG←2↑⍞
[9]    →L1
[10]  L0A:COG←UCOG
[11]  L1:I←15
[12]  L1A:CLEARSCREEN
[13]  L2:(('PROPOSALS ',▼(¯2+I÷5)),' TO '),▼I÷5
[14]   LINE
[15]   ¯15 79 ↑(I,79)↑⍪P←'PROPOSED',▼COG
[16]   →L3×⍳(I+1)>1↑⍴⍪P
[17]   I←I+15
[18]   'ENTER:    0       TO EXIT WITHOUT ANY FURTHER ACTION'
[19]   'ENTER:    1       TO VIEW THE NEXT THREE PROPOSALS'
[20]   'ENTER:    2       TO ACCEPT A PROPOSAL'
[21]   'ENTER:    3       TO REJECT A PROPOSAL'
[22]   'PLEASE NOTE THE NUMBER OF THE PROPOSAL OF INTEREST'
[23]   →L4
[24]  L3:'ENTER:    0       TO EXIT WITHOUT ANY FURTHER ACTION'
[25]   'THIS IS THE LAST SET OF PROPOSALS'
[26]   'ENTER:    2       TO ACCEPT A PROPOSAL'
[27]   'ENTER:    3       TO REJECT A PROPOSAL'
[28]  L4:→E1×⍳(0>ANS)∨4≤ANS←⍞
[29]   →0×⍳ANS=0
[30]   →L1A×⍳ANS=1
[31]   →L20×⍳ANS=2
[32]   →L30×⍳ANS=3
[33]   →E1
```

```
[34] L20:CLEARSCREEN
[35]  A←'A'
[36]  'ENTER THE NUMBER OF THE PROPOSAL YOU WANT TO ACCEPT.'
[37]  'IF YOU DON''T REMEMBER ENTER ZERO TO SEE THE PROPOSAL
      S AGAIN'
[38]  →L1×⍳0=NP←⍞
[39]  →E2×⍳(NP<0)∨NP>1↑⍴⍎P
[40]  I←5×NP
[41] L21:'DO YOU WANT TO APPEND A MESSAGE OF 65 CHARACTERS O
      R LESS'
[42]  'FOR THE DETAILER? (Y/N)'
[43]  →E2×⍳('Y'=ANS)∧'N'=ANS←1↑⍞
[44]  →L22×⍳ANS='Y'
[45]  PL5← 1 79 ↑ 1 9 ⍴'ACCEPTED.'
[46]  →L23
[47] L22:'ENTER THE MESSAGE YOU WANT TO SEND'
[48]  MSG←70↑⍞
[49]  PL5← 1 79 ⍴'ACCEPTED,',MSG
[50] L23:Y←'PROPOSALS',AOC←¯2↑75↑(⍎P)[I-4;]
[51]  T←(⍎P)[(I-4),(I-3),(I-2),(I-1),I;]
[52]  T←((IY←(1↑⍴⍎Y)÷5),395)⍴T
[53]  T2←+/(⍳IY)×395=+/T=(IY,395)⍴⍎Y
[54]  →E4×⍳0=T2
[55]  ⍎'PROPOSALS',AOC,'[T2×5;]←PL5'
[56]  ⍎'PROPOSED',COG,'[I;]←PL5'
[57]  BSC←¯5↑29↑(⍎P)[I-1;]
[58]  UIC←5↑(⍎P)[I-1;]
[59]  UICBSC←UIC,BSC
[60]  Y←'POSTINGS',1↑AOC
[61]  IY←1↑⍴⍎Y
[62]  T2←+/(⍳1↑⍴⍎Y)×10=+/((IY,10)⍴UICBSC)=(IY,¯10)↑(IY,14)↑⍎
      Y
[63]  ⍎'POSTINGS',(1↑AOC),'[T2;280]←A'
[64]  →0
```

```
[65] L30:CLEARSCREEN
[66]  A←' '
[67]  'ENTER THE NUMBER OF THE PROPOSAL YOU WANT TO REJECT.'
[68]  'IF YOU DON''T REMEMBER ENTER ZERO TO SEE THE PROPOSAL
      S AGAIN'
[69]  →L1×⍳0=NP←⍞
[70]  →E2×⍳(NP<0)∨NP>1↑⍴⍎P
[71]  I←5×NP
[72] L31:'DO YOU WANT TO APPEND A MESSAGE OF 65 CHARACTERS O
      R LESS'
[73]  'FOR THE DETAILER? (Y/N)'
[74]  →E5×⍳('Y'=ANS)∧'N'=ANS←1↑⍞
[75]  →L32×⍳ANS='Y'
[76]  ⍞←PL5← 1 79 ↑ 1 9 ⍴'REJECTED.'
[77]  →L33
[78] L32:'ENTER THE MESSAGE YOU WANT TO SEND'
[79]  MSG←70↑⍞
[80]  ⍞←PL5← 1 79 ⍴'REJECTED,',MSG
[81] L33:→L23
[82] E1:'E1'
[83] E2:'INPUT ERROR. PLEASE REENTER.'
[84]  →L21
[85] E3:'SEE THE DETAILER.  THE PROPOSAL IS LISTED TWICE IN
      HIS FILE.'
[86]  →0
[87] E4:'EITHER THERE IS NO PROPOSAL ON RECORD WITH THE AOC,
       OR'
[88]  'THIS PROPOSAL HAS BEEN RECORDED AS PREVIOUSLY ACCEPTE
      D OR'
[89]  'REJECTED.'
[90]  →0
[91] E5:'INPUT ERROR. PLEASE REENTER.'
[92]  →L31
      ∇
      .
```

```
      ∇ SCREENALLOW;CMD;UIC;HP;APRI;T;TT;T1;I;J
[1]   ⍝ THIS FUNCTION PERMITS THE PLACEMENT OFFICER TO LOOK A
      T THE ALLOWANCE OF A COMMAND.
[2]   ⍝ INPUT:UIC, FNAME (BOTH PROMPTED)
[3]   ⍝ FUNCTIONS USED: BRACKETNHALFUIC, CLEARSCREEN, LINE
[4]   ⍝OUTPUT: PRINTS ALLOWANCE OF UIC SPECIFIED
[5]    'ENTER THE UIC OF THE COMMAND YOU WISH TO VIEW'
[6]    UIC←⍞
[7]    UIC BRACKETNHALFUIC BILLET
[8]    →L1×⍳2=ρρZ
[9]    Z← 1 278 ρZ
[10] L1:J←1↑ρZ
[11]   CLEARSCREEN
[12]   CMD←¯16↑66↑Z[1;]
[13]   UIC←5↑Z[1;]
[14]   HP←¯6↑84↑Z[1;]
[15]   APRI←¯1↑69↑Z[1;]
[16]   ((28ρ' '),'ALLOWANCE FOR: '),▼CMD
[17]   ' '
[18]   ((((((('UIC: ',▼UIC),(10ρ' ')),'HOMEPORT: '),▼HP),(10ρ
       ' ')),'ACTIVITY PRI: '),▼APRI
[19]   ' '
[20]   'BSC      BILLET                                        DES
       IG GRADE'
[21]   '          AQD1    AQD2    SUB1     SUB2     ALLOW    AUTH
       FY+5       BILPRI '
[22]   LINE
[23]   T1← 1 64 ρ' '
[24]   T←((((J,¯5)↑(J,10)↑Z),(J,3)ρ' '),(J,¯40)↑(J,148)↑Z),(J
       ,2)ρ' '
[25]   T←((T,(J,¯4)↑(J,88)↑Z),(J,2)ρ' '),(J,¯1)↑(J,89)↑Z
[26]   T←(J,64)↑T
[27]   TT←((((J,8)ρ' '),(J,¯3)↑(J,92)↑Z),(J,4)ρ' '),(J,¯3)↑(J
       ,95)↑Z
[28]   TT←(((TT,(J,4)ρ' '),(J,¯5)↑(J,153)↑Z),(J,3)ρ' '),(J,¯5
       )↑(J,158)↑Z
[29]   TT←(((TT,(J,3)ρ' '),(J,¯5)↑(J,173)↑Z),(J,3)ρ' '),(J,¯5
       )↑(J,163)↑Z
[30]   TT←(((TT,(J,3)ρ' '),(J,¯5)↑(J,168)↑Z),(J,4)ρ' '),(J,¯1
       )↑(J,70)↑Z
[31]   I←1
[32] LOOP:T1←(T1,[1] T[I;]),[1] TT[I;]
[33]   →LOOP×⍳J≥I←I+1
[34]   T1
       ∇
       .
```

```
      ∇ SCREENAVAILS;I;A
[1]   ⍝THIS FUNCTIONS PERMITS THE DETAILER TO SCREEN OFFICERS
        WHO HAVE BEEN MADE AVAILABLE.
[2]   ⍝INPUT: USES GLOBAL VARIABLE ''AVAILXX'' WHERE XX IS TH
      E YEARGROUP
[3]   ⍝FUNCTIONS USED: CLEARSCREEN, LINE
[4]   ⍝OUTPUT: PRINTS LIST OF AVAIL OFFICERS FOR THAT AOC.
[5]    FLAG←0
[6]    →L1×⍳2≠+/''1 '=2↑UAOC
[7]    'ENTER THE AOC YOU WANT TO CHECK'
[8]    UAOC←2↑⍞
[9]    FLAG←1
[10] L1:CLEARSCREEN
[11]   Y←'AVAIL',▼UAOC
[12]   ((36⍴' '),'AOC  '),UAOC
[13]   (24⍴' '),'OFFICERS AVAILABLE FOR TRANSFER'
[14]   'AVAIL'
[15]   'DATE    SSN                    NAME              RANK DESI
      G  PRD COMMAND'
[16]   A←(((I,4)↑⍕Y),(I,2)⍴' '),(I,¯9)↑((I←1↑⍴⍕Y),13)↑⍕Y
[17]   A←(A,(I,2)⍴' '),(I,¯27)↑(I,40)↑⍕Y
[18]   A←((A,(I,2)⍴' '),(I,¯1)↑(I,41)↑⍕Y),(I,2)⍴' '
[19]   ⍞←A←((A,(I,¯4)↑(I,48)↑⍕Y),(I,2)⍴' '),(I,¯4)↑(I,52)↑⍕Y
[20]   →0×⍳0=FLAG
[21]   UAOC←'1'
       ∇
       .
```

```
      ∇ SCREENMADEAVAILS
[1]   ⍝THE PURPOSE OF THIS FUNCTION IS TO PERMIT THE PLACEMEN
      T OFFICER TO SCREEN THE OFFICERS WHO HE HAS MADE AVAIL
      ABLE FOR TRANSFER.
[2]   ⍝INPUT: USES FILE MADEAVAIL
[3]   ⍝FUNCTIONS USED: CLEARSCREEN
[4]   ⍝OUTPUT: PRINTS LISTING OF OFFICERS MADE AVAILABLE
      CLEARSCREEN
[6]   'AVAIL SSN        NAME                    GRADE  AOC'
[7]   LINE
[8]   MADEAVAIL
      ∇
      .
```

```
      ∇ SCREENPOSTED;A;B;Y
[1]   ⍝THIS FUNCTION PERMITS THE PLACEMENT OFFICER TO REVIEW
      THE BILLETS HE HAS POSTED.
[2]   ⍝INPUT: DATA FILE POSTEDXX WHERE XX IS THE PLACEMENT CO
      G CODE
[3]   ⍝FUNCTIONS USED: CLEARSCREEN,LINE
[4]   ⍝OUTPUT: PRINTS THE LIST OF POSTED BILLETS
[5]    CLEARSCREEN
[6]    ((25⍴' '),'BILLETS POSTED BY COG '),UCOG
[7]    ' '
[8]    LINE
[9]    (74⍴' '),'FILL'
[10]   (((('UIC   COMMAND',(11⍴' ')),'BSC   BILLET'),(34⍴' '))
       ,'AOC DATE'
[11]   Y←'POSTED',UCOG
[12]   LINE
[13]   A←((((B,5)↑⍕Y),((B,1)⍴' ')),((B,¯16)↑(B,21)↑⍕Y)),((B←1
       ↑⍴⍕Y),2)⍴' '
[14]   A←((A,((B,¯5)↑(B,26)↑⍕Y)),((B,1)⍴' ')),(B,¯40)↑((B←1↑⍴
       ⍕Y),66)↑⍕Y
[15]   ⎕←(A,((((B,1)⍴' ')),(B,¯2)↑(B,68)↑⍕Y),(B,1)⍴' '),(B,¯4
       )↑⍕Y
       ∇
       .
```

```
      ∇ SCREENPOSTINGS;A;A1;A2;B;I
[1]   ⍝THIS FUNCTION PERMITS THE DETAILER TO VIEW THE BILLETS
       POSTED
[2]   ⍝INPUT: POSTINGSX (WHERE X IS THE FIRST DIGIT OF THE AO
      C), UAOC
[3]   ⍝FUNCTIONS USED: CLEARSCREEN, LINE
[4]   ⍝OUTPUT: BILLETS WHICH HAVE BEEN MADE AVAILABLE IN ORDE
      R OF COG, FILL DATE, UIC AND BSC
[5]    →OK×⍳' '≠1↑UAOC
[6]    '***AOC ERROR.  PLEASE VERIFY AND START OVER.'
[7]    FLAG←9
[8]    →0
[9]   OK:→L1×⍳2≠↑/'1 '=2↑UAOC
[10]   'ENTER THE AOC OF THE POSTING LIST YOU WANT TO EXAMINE
       '
[11]   UAOC←1↑⍞
[12]   FLAG←1
[13]  L1:CLEARSCREEN
[14]   (('FILL  UIC    COMMAND',(11⍴' ')),'BSC    BILLET'),(
      32⍴' ')
[15]   A←(((((((((B,'COG'),B),'DESIG'),B),'GRADE'),B),B),'AQD
       1'),(B←5⍴' ')),'AQD 2'
[16]   ⎕←A←((((A,B),B),'SUB 1'),B),'SUB 2'
[17]   LINE
[18]   Y←'POSTINGS',UAOC
[19]   A←'♣⍝,(B,17)↑(((B,¯2)↑⍝Y),((B,4)↑⍝Y)),((B,¯5)↑((B←1↑⍴⍝
      Y),9)↑⍝Y),'
[20]   A←A,'(B,¯5)↑((B←1↑⍴⍝Y),14)↑⍝Y'
[21]   ⍝Y,('←(⍝Y)[',A),';]'
[22]   A←((((B,4)↑⍝Y),((B,2)⍴' ')),(B,¯5)↑(B,9)↑⍝Y),((B←1↑⍴⍝Y
      ),2)⍴' '
[23]   A←(((A,(B,¯16)↑(B,70)↑⍝Y),((B,2)⍴' ')),(B,¯5)↑(B,14)↑⍝
      Y),(B,2)⍴' '
[24]   A←A,(B,¯40)↑(B,152)↑⍝Y
[25]   A2←((((B,5)⍴' '),((B,¯2)↑⍝Y)),((B,6)⍴' ')),(B,¯4)↑(B,
      92)↑⍝Y),(B,8)⍴' '
[26]   A2←(((A2,(B,¯1)↑(B,93)↑⍝Y),((B,13)⍴' ')),(B,¯3)↑(B,96)
      ↑⍝Y),(B,7)⍴' '
[27]   A2←(((A2,(B,¯3)↑(B,99)↑⍝Y),((B,11)⍴' ')),(B,¯5)↑(B,157
      )↑⍝Y),(B,5)⍴' '
[28]   A2←A2,(B,¯5)↑(B,162)↑⍝Y
[29]   I←1
[30]   A1←(0 78)⍴' '
[31]  LOOP:A1←(A1,[1] A[I;]),[1] A2[I;]
[32]   →LOOP×⍳B≥I←I+1
[33]   A1
       ∇
       .
```

```
      ∇ SCREENPROPOSALS;AOC;I;ANS;Y;T;A
[1]   ⍝THIS FUNCTION PERMITS THE DETAILER TO VIEW THE PROPOSA
      LS HE HAS MADE.
[2]   ⍝INPUT: PROPOSALSXX (WHERE XX IS AN AOC), AOC
[3]   ⍝FUNCTIONS USED: CLEARSCREEN, LINE
[4]   ⍝OUTPUT: DISPLAYS PROPOSALS, ERASES PROPOSALS
[5]   L0:CLEARSCREEN
[6]    →L1×⍳2≠+/'1 '=2↑UAOC
[7]    'ENTER THE AOC WHOSE PROPOSALS YOU WANT TO CHECK'
[8]    AOC←2↑⍞
[9]   L1:CLEARSCREEN
[10]   I←15
[11]  L2:(('PROPOSALS ',⍕(¯2+I÷5)),' TO '),⍕I÷5
[12]   LINE
[13]   ¯15 79 ↑(I,79)↑⍎'PROPOSALS',⍕AOC
[14]   →L3×⍳(I+1)>1↑⍴⍎'PROPOSALS',⍕AOC
[15]   I←I+15
[16]   'ENTER A BLANK LINE TO VIEW THE NEXT SCREEN'
[17]   ⍞
[18]   CLEARSCREEN
[19]   →L2
[20]  L3:
[21]   'ENTER:      D          TO DELETE A PROPOSAL'
[22]   'ENTER:      E          TO EXIT THE PROGRAM'
[23]   'ENTER:      R          TO VIEW THE PROPOSALS AGAIN'
[24]   →E1×⍳('E'≠ANS)∧('R'≠ANS)∧'D'≠ANS←⍞
[25]   CLEARSCREEN
[26]   →0×⍳ANS='E'
[27]   →L1×⍳ANS='R'
[28]   CLEARSCREEN
[29]   'ENTER THE NUMBER OF THE PROPOSAL.  IF YOU DO NOT REME
       MBER,'
[30]   'ENTER 0 TO VIEW THE PROPOSALS AGAIN.'
[31]   →L1×⍳0=ANS←⍞
[32]  L10:→L20×⍳1≠¯4↑I←ANS×5
[33]   Y←⍎'PROPOSALS',AOC
[34]   T←((-(¯5+1↑⍴Y)),79)
[35]   Y←T↑Y
[36]   →L40
[37]  L20:→L30×⍳(1↑⍴⍎'PROPOSALS',AOC)≠I←ANS×5
[38]   Y←(T←((¯5+1↑⍴Y),79))↑Y←⍎'PROPOSALS',AOC
[39]   →L40
[40]  L30:Y←(((¯5+I),79)↑Y),[1]((I-(1↑⍴Y)),79)↑Y←⍎'PROPOSALS'
       ,AOC
[41]  L40:A←'PROPOSALS',AOC
[42]   ⍎A,'←Y'
[43]   →0
[44]  E1:'E1'
      ∇
      .
```

```
      ∇ SCREENRECORD;A;B;C;D;E;F;G;SSN
[1]   ⍝THIS FUNCTION PERMITS THE DETAILER TO REVIEW THE RECOR
      D OF AN OFFICER.
[2]   ⍝INPUT: SSN(PROMPTED)
[3]   ⍝FUNCTIONS USED: CLEARSCREEN,BRACKETNHALFSSN
[4]   ⍝OUTPUT: DISPLAYS AN OFFICER'S RECORD
[5]   L1:'ENTER THE SSN OF THE OFFICER WHOSE RECORD YOU WANT
      TO REVIEW.'
[6]   SSN←⍞
[7]   →E1×⍳0≠+/(9⍴' ')=9↑SSN
[8]   →E1×⍳9≠⍴SSN
[9]   SSN BRACKETNHALFSSN BODY
[10]  →0×⍳9=FLAG
[11]  A←(('SSN: ',(⍕9↑Z)),'    NAME: '),(⍕¯27↑36↑Z)),'    D
      ESIG: '
[12]  A←((A,(⍕¯4↑44↑Z)),'    GRADE: '),¯1↑37↑Z
[13]  B←((((6⍴' '),'PRD: '),(⍕¯4↑48↑Z)),'    YRGP: '),⍕¯2↑39
      ↑Z
[14]  B←((((B,'    DEPENDENT CODE: '),(⍕¯1↑53↑Z)),' '),⍕¯1↑
      54↑Z),'    AOC: '
[15]  B←((B,(⍕¯2↑56↑Z)),'    COG: '),⍕¯2↑50↑Z
[16]  C←(((15⍴' '),'SUBSPECIALITIES: (1) '),(¯5↑84↑Z)),'
      (2) '
[17]  C←((C,(¯5↑89↑Z)),'    (3) '),¯5↑94↑Z
[18]  D←(((((('AQD''S: ',(¯5↑480↑Z)),' '),(¯5↑485↑Z)),' '),(
      ¯5↑490↑Z)),' '
[19]  D←((((((D,(¯5↑495↑Z)),' '),(¯5↑500↑Z)),' '),(¯5↑505↑Z)
      ),' '),¯5↑510↑Z
[20]  D←((((((D,' '),(¯5↑515↑Z)),' '),(¯5↑520↑Z)),' '),(¯5↑
      525↑Z)),' '
[21]  D←((D,(¯5↑530↑Z)),' '),¯5↑535↑Z
[22]  E←(((14⍴' '),'FROM TO   ACTIVITY'),8⍴' '),'TYPE HOMEPO
      RT MO.DEPL'
[23]  F← 8 33 ⍴¯264↑473↑Z
[24]  G←(((8 14 ↑ 1 14 ⍴'CURRENT DUTY: '),(8 4 ↑F)),(8 1 ⍴
      ' ')),(8,¯4)↑ 8 8 ↑F
[25]  G←(((G,(8 1 ⍴' ')),((8,¯16)↑ 8 24 ↑F)),(8 1 ⍴' ')),(8,
      ¯1)↑ 8 25 ↑F
[26]  G←(((G,(8 4 ⍴' ')),((8,¯6)↑ 8 31 ↑F)),(8 1 ⍴' ')),(8,
      ¯2)↑ 8 33 ↑F
```

```
[27]  CLEARSCREEN
[28]  (29⍴' '),'OFFICER RECORD REVIEW'
[29]  ' '
[30]  ' '
[31]  A
[32]  ' '
[33]  B
[34]  ' '
[35]  C
[36]  ' '
[37]  D
[38]  ' '
[39]  E
[40]  ' '
[41]  G
[42]  →0
[43] E1:'SSN INPUT ERROR. PLEASE TRY AGAIN.'
[44]  →⎕1
      ∇
      .
```

LIST OF REFERENCES

1. Bureau of Naval Personnel, Bupers Futures Forum 1975-1985, unpublished policy guideline manual, 1973.

2. Eubanks, T.I. and Thompson, G.L., Carnegie-Mellon University Technicial Report, Bargaining Assignment and Officer Rotation Models in the U.S. Navy, 1977.

BIBLIOGRAPHY

Cass, D., Charnes, A., Cooper, W.W., Niehas, R.J., Texas University Center for Cybernetic Studies Research Report, A Program for Navy Officer Distribution Models, August 1973.

Department of the Navy, NAVPERS 15839E, Manual of Navy Officer Manpower and Personnel Classifications, Vol I and II, 1980.

Gilman, L. and Rose, A.J., APL an Interactive Approach, Wiley, 1974.

International Business Machines Corporation, VS APL for CMS: Terminal User's Guide, IBM, 1981.

Moody, William B.B., Computer-Assisted Detailing for U.S. Naval Officers, Naval Postgraduate School M.S. Thesis, June 1976.

Rehab Group Incorporated, The Navy Personnel Distribution System (Officer and Enlisted), September 30, 1980.

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